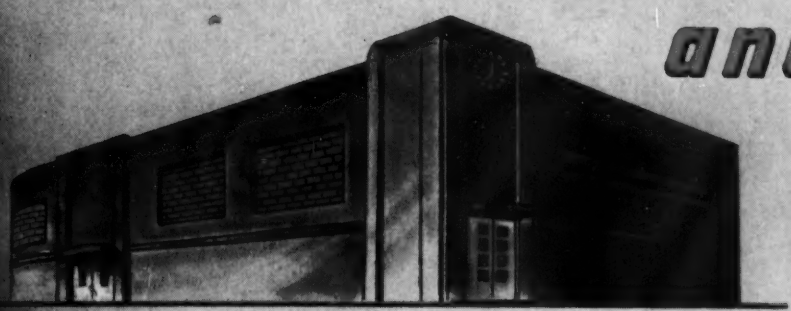
Textile World

NOVEMBER, 1943

WAR TIME

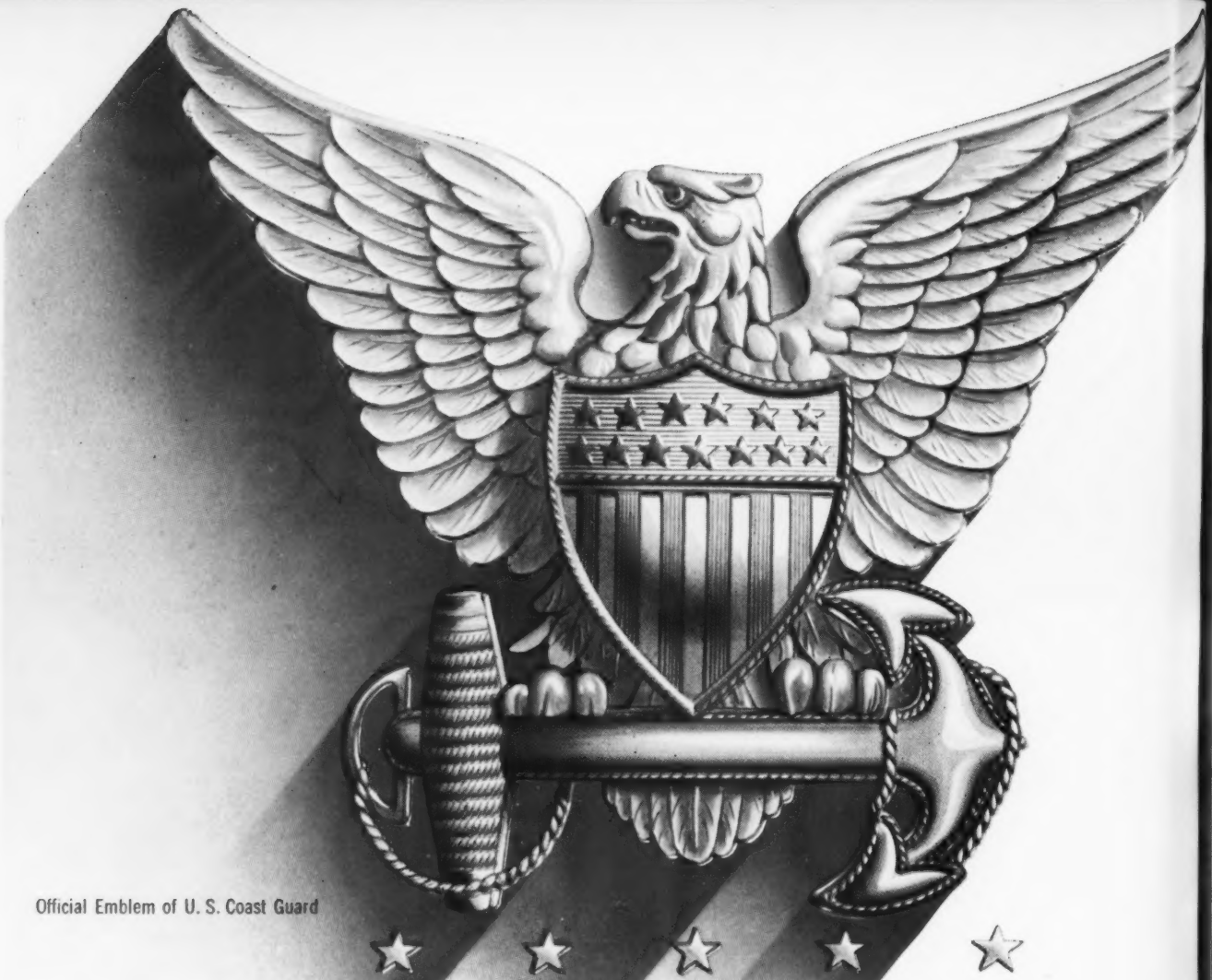
Maintenance and



POST WAR

Planning

DOUBLE FEATURE IN ANNUAL MILL CHECK-UP NUMBER BEGINS ON PAGE 113



Official Emblem of U. S. Coast Guard

WE SALUTE
The U. S. COAST GUARD

. . . and the American manufacturers

whose skill and effort provide them

with the world's best equipment.

BUY U. S. WAR BONDS

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828 | Schafer, Schramm & Vogel Established 1838 | Peierls, Buhler & Co., Inc. Established 1891

TWO PARK AVENUE, NEW YORK

EUGENE G. LYNCH, 80 FEDERAL STREET, BOSTON, MASS

T. HOLT HAYWOOD, WINSTON-SALEM, NORTH CAROLINA

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TECHNOLOGY DEPT.

Shops at Beebe River N H where Draper Bobbins Are Made

Getting Out the Raw Material

New Bobbin Blank Mill at Guilford Maine

Still Pressing Our Hunt For a Bigger Supply of Raw Stock for Bobbins

Bobbins are a necessity of the wartime home front.

Without them our mills could not turn out the fabrics needed for airplanes and clothing and other creature comforts of our fighters on our battlefronts.

No substitute for wood in the making of bobbins has been found—and the available supply of proper wood is getting short.

We have bought thousands of acres of forests all the way across northern New England and have opened two bobbin roughing mills—at Woodford, Vt., and Guilford, Me.—to keep the supply of blanks flowing in a steady stream to our Bobbin Finishing plant at Beebe River.

You Want Only the Best in Bobbins
We Are Out to Get Them for You
In Spite of Difficult Conditions

Draper Corporation

Atlanta Hopedale Spartanburg

The Cloth that will Stand the Test of Tomorrow's Battles is being Woven with **Flat Steel Heddle Products** today

STEEL HEDDLE MFG. CO.

BRANCH OFFICES ALL OVER THE WORLD

Manufacturers of Superior

FLAT STEEL HEDDLES—HARNESS FRAMES—ALL TYPES OF LOOM REEDS—
TEMPERED DOGWOOD SHUTTLES—LOOM HARNESS ACCESSORIES

2100 W. Allegheny Avenue Philadelphia, Pa.

FIELD ENGINEERS IN EVERY DISTRICT

KNOCKS THE SPOTS OUT OF KNITTING

SUN LUBRICANT

...eliminates rusty bearings and stops spotting of stockings

Spots . . . rusty spots on stockings caused by bearings rusting on full fashioned hosiery machines were constantly ruining material. When rust was removed by cleaning the bearings it reappeared within a week. Many competitive brands of oil were tried—but none stopped the rusting.

Then a Sun Textile Engineer—one of those Doctors of Industry—was called in. He recommended a special grade of Sun Circo Oil as the lubricant to be applied . . . and the rusting condition stopped immediately. Now after more than a year's operation not a bearing has rusted . . . spots on stockings have been eliminated . . . and many hours have been saved that were previously lost in cleaning and reassembling bearings.

Whatever the problem that confronts you in your mill—lubrication or processing—the services of Sun's Doctors of Industry and the products they offer are yours to use to help improve your production. Write today for full information to . . .

SUN OIL COMPANY • *Philadelphia*

Sun Oil Company, Ltd., Toronto, Canada

SUN INDUSTRIAL PRODUCTS

SUNOCO

HELPING INDUSTRY HELP AMERICA

An Anniversary

Comments by Henry G. Lord

The year 1943 is the 75th anniversary of the first textile publication in the United States, the *Manufacturer's Review and Industrial American,* which is the oldest root or antecedent of the present TEXTILE WORLD. The first magazine to carry the name TEXTILE WORLD was founded 55 years ago. With it was merged not only the *Manufacturer's Review and Industrial American,* but also *Textile Record,* founded 63 years ago, in Philadelphia. The first merger was in 1897; and the second, in 1907.

As far as I know, there is only one copy of the first issue of TEXTILE WORLD in existence, and we keep that locked up in the safe. I was looking at it the other day and thought it was sufficiently interesting to reproduce herewith. It was unique, even in those days, being published in newspaper form, with much of the advertising on the front page. Advertising was merely a sign board, listing the products of the advertiser.

TEXTILE MANUFACTURING WORLD.

THE BRAMWELL FEEDER.
Picker Feeder. Apperly Feeder.
COTTON YARN.
A. HOPKINS & CO.
WALPOLE DYE and CHEMICAL WORKS.
OVERCUFFS AND CHEMICALS
F. A. LEICH & CO.
PAPER BOX TUBES
NATIONAL VENTILATION CO.
Ventilating Engineers.
DAFORM PERFECTED.
OCTOPUS GLOY SIZE.
The Gloy Manufacturing Co. London, Eng.
ARTHUR A. BRIGHAM.
TEXTILE MACHINERY & MILL SUPPLIES.
LOWELL MACHINE SHOP.
LOWELL, MASS.
COTTON MACHINERY
PETTEE MACHINE WORKS.
REVOLVING FLAT CARDS
Revolving Flat Cards Speak for Themselves.
WM. FIRTH, 178 Devonshire St., Boston, Mass.
WATERHOUSE SYSTEM.
Spindle Makers
Machinists
BLACKMAN POWER VENTILATOR
Bee-Hive Spindle & Flyer Works.
LOOM REEDS.
HOLYOKE MACHINE Co.
Lobel Turbine Water Wheel.
KNITTING MACHINERY.
ELEVATORS.
BOOKS.

It is a striking commentary on the rapid changes in American business to look over this front page, which contained a fairly good representation of textile equipment concerns, and note how few are still in business. And it is pleasing to me that those few are *still* advertising in TEXTILE WORLD. If the others had continued to advertise, there is no doubt but that they too would still be in business.

TEXTILE WORLD and *Textile Record* have had very able editors, men who made their mark in the development of the industry while building the prestige of the paper. The fundamental aim of our editorial policy has been to stimulate practical thinking and methods.

The first editor, Walter S. Kelly, was an expert on cotton carding and spinning. He developed the Kelly table of breaking strength of cotton yarn. Charles Heber Clark, the editor of *Textile Record,* was an economist of wide note and an authority on tariff matters. Henry G. Kittredge was an economist of reputation. Samuel S. Dale had been a manufacturer for many years before he became editor. He was a great fighter for the preservation of English and American standards of weights and measures which were threatened by the metric system. Charles Clark and Vernon Carroll were co-editors with wide experience and sane judgment on manufacturing and merchandising problems. Clarence Hutton specialized in the technical side of journalism. And, most recently, Douglas Woolf, who takes with him to his new field of activity in textile research the best wishes of the Textile World staff and readers. And now, Edwin D. Fowle and Winn W. Chase, both capable and experienced editors, take over after long association on its editorial staff.

It is a source of great satisfaction to me to realize what a fine job our editors accomplish through the years.

HENRY G. LORD, ***Vice-President of McGraw-Hill Publishing Co. and Founder of Textile World***

Suppose your Plant Equipment had to Fly..

★ We ask this far-fetched question to make a point.

Ten to one, if your equipment or product had to fly, you would have to make it far more efficient.

In a nutshell... that's our story to you about PESCO hydraulic, air, vacuum and fuel pumps. The efficient—and that should be put in capital letters—the EFFICIENT type of pumps we make for airplanes ought to be performing on your plant equipment, in your product.

Efficiency pays!

For more than ten years we have specialized in making the pumping equipment required by the aviation industry. In the course of engineering these pumps to meet the extreme flying conditions, we have developed many new features... exclusive features, plus a know-how in precision manufacture that provide the highest standard of efficiency and dependability in pumping equipment.

Whether you require pumping equipment for *pressurized power* or *controlled liquid flow*, PESCO performance is available to you. May we tell you more about PESCO Pumps and PESCO Engineering Service?

SEND FOR THIS BOOK "Pressurized Power and Controlled Flow by PESCO". This book pictorially tells the story of PESCO equipment, manufacturing facilities and engineering service. A copy will be mailed promptly upon request.

WRITE TO...
PESCO Products Co.
Industry Service O
11610 Euclid Avenue
Cleveland 6, Ohio

Division Borg-Warner

In Precision Hydraulics, Fuel Pumps,
Air Pumps, Related Accessories...
PERFORMANCE POINTS TO Pesco FIRST

A ★ HAS BEEN ADDED

We're keeping our pledge

In March of this year, the Army & Navy E was awarded to the men and women at the Saco-Lowell Shops in Biddeford, Maine. At that time we said . . .

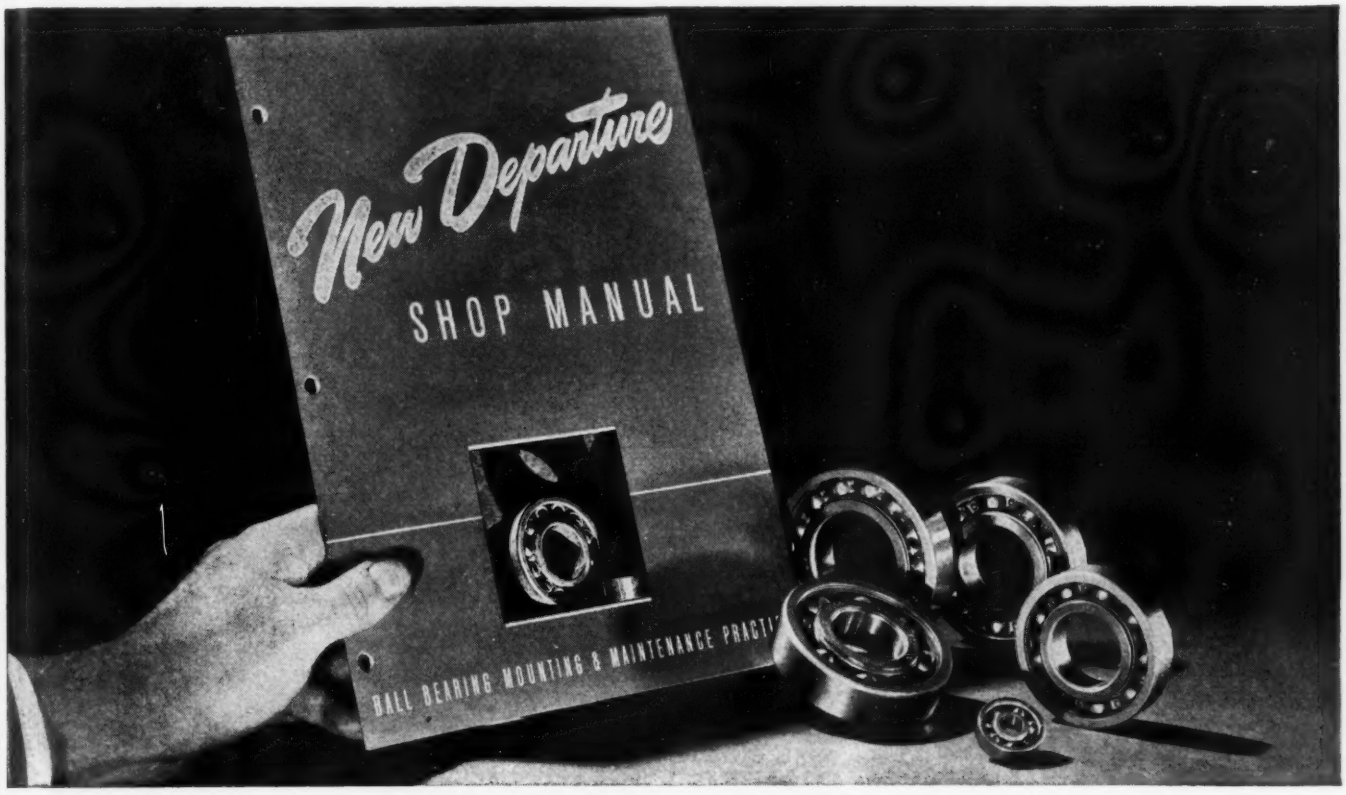
> *This award, representing work which has been done, will be a symbol of the greater work that will continue to be done until there is more than enough material for Victory.*

This star is a new citation, awarded for a pledge that has been kept. Those on the fighting front can depend on continued support from the Saco-Lowell home front.

SACO-LOWELL SHOPS · BIDDEFORD · MAINE

80 hours a week is PUNISHMENT

Yet . . . much textile machinery has been operating 80 hours a week—twice the normal operating time—for more than three years! That is why MAINTENANCE is so important! That is why "The Shop Manual" is so timely!



● This late addition to the well-known New Departure Engineering Library is New Departure technical staff's most recent effort to aid 'regular customers." It should be read by every textile man responsible for the correct installation of ball bearings for maximum service and long life. If your copy is mislaid or dog-eared from overwork, we'll be glad to send a new one. Also . . . we'll send enough additional copies to supply your interested personnel. Send your request to New Departure Division General Motors Corporation, Bristol, Connecticut.

New Departure

THE FORGED STEEL BEARING

has a major responsibility in the whole ball bearing war production program

3304

NOTHING TO IT, EH?

Modern war planes can climb a mile a minute. In very few minutes a fast climber can be up in the sub-stratosphere. But . . .

Temperature takes a nose dive as the plane soars higher. At 20,000 feet the temperature is well below zero. Apparently at about 35,000 it becomes fixed . . . *at 70 degrees below zero* in the temperate zone. Over the equator, stratosphere temperature drops as low as 100 degrees below zero.

Both pilot and plane encounter troubles in the bitter-cold, rarefied air of the sub-stratosphere. Moisture freezes, oil congeals, engines gasp and die unless aided by turbo-superchargers.

Nevertheless, planes and pilots are learning to fight at higher and higher levels—thanks to research conducted on the ground in test chambers which reproduce the conditions of the stratosphere. Accurately controlled *air conditioning and refrigeration*...plus controlled pressure...make these tests possible.

This is one of the many interesting and important ways in which air conditioning is contributing to our war effort. To do the tasks of war time, General Electric has developed dependable air conditioning and industrial refrigeration equipment...equipment that is more flexible, more compact, more efficient.

After the war, lessons learned in wartime production will be applied to making better peacetime air conditioning. This will be made available to all from General Electric.

☆ BUY WAR BONDS ☆

General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 4311, Bloomfield, N. J.

Air Conditioning by

GENERAL ELECTRIC

Hear the General Electric Radio Programs: The "HOUR OF CHARM," Sunday 10 P. M., EWT, NBC..."THE WORLD TODAY" News, Every Weekday 6:45 P. M., EWT, CBS

ONE OF A SERIES OF SUGGESTIONS TO AID PRODUCTION

Have You a Tough Grease Problem?

HOW TO SOLVE Operating Problems with *Correct Lubrication*

JUST LOOK AT SOME OF THE OPERATING CONDITIONS SPECIAL GARGOYLE GREASES ARE LICKING. THE EXPERIENCE THAT DEVELOPED THESE GREASES IS AVAILABLE TO YOU...

HIGH TEMPERATURE	OVER 400° F.		Gargoyle Grease BRB4 Gargoyle Sovarex Grease
EXCESSIVE WATER	WATER-FLOODED BEARINGS		Gargoyle Grease AA Gargoyle Sovarex Grease
EXTREME SPEEDS	20,000 TO 50,000 R.P.M.		Gargoyle Grease BRB4 (for ball bearings)
HIGH PRESSURES	MEETS MOST SEVERE STEEL MILL USE		Gargoyle Grease Sovarex L
LOW TEMPERATURE	−40° F.		Gargoyle Mobilgrease Zero
WIDE TEMPERATURE RANGE	+250° F. TO −60° F.		[Name on Request]

IF YOU are responsible for the operation of any machines or equipment that are grease-lubricated—*be sure you've heard the Gargoyle Grease story!*

There is available to you the same full line...the same high quality in Gargoyle *Greases* that you have learned to depend upon in Gargoyle *Oils*.

And they are sold on the same basis i.e. *their use will bring you benefits in power and maintenance economies...and in full time, capacity production!*

GARGOYLE Lubricants

SOCONY-VACUUM OIL CO., INC.— Standard Oil of N. Y. Div. • White Star Div. • Lubrite Div. • Chicago Div. White Eagle Div. • Wadhams Div. • Magnolia Petroleum Co. • General Petroleum Corporation of California

HEADQUARTERS FOR GREASES TO MEET EVERY PROBLEM—

SOCONY-VACUUM

ONE OF A SERIES OF SUGGESTIONS TO AID PRODUCTION

A Single Source of Supply

for

FLOOR CLEANSERS
SEALERS
WAXES

Solarbrite Scrub Soap
Finola Scouring Powder
Century Scouring Powder
Solar Soap Powder
Sanax Wax Cleaner
Finnell Rubber Cleaner
Asesco Solvent Cleanser
Setol All-Purpose Cleaner
Finnell Fulfil
An Oil Filler, Sealer
Finnell Terrazzo-Fil
Finnell Gym-Fil

More Practical Than Ever in War-Time!

Gloss Seal, *Several Types*
Traffic Seal
Fino-Gloss Liquid Wax,
Several Types
Finnell-Kote, *A Solid Wax*
Finnell Liquid Kote Wax
Finnell Liquid Wax
Finnell Paste Wax
Finnell Cream Kote Wax

OTHER *Finnell* PRODUCTS

Han-San Hand Soap
Han-Kleen
Heavy Duty Hand Soap
Crystal Cleanser, *For Dishwashing*

Rug Shampoo
Killum, *An Insecticide*
Floor-Maintenance Equipment
Accessories

Expert Counsel

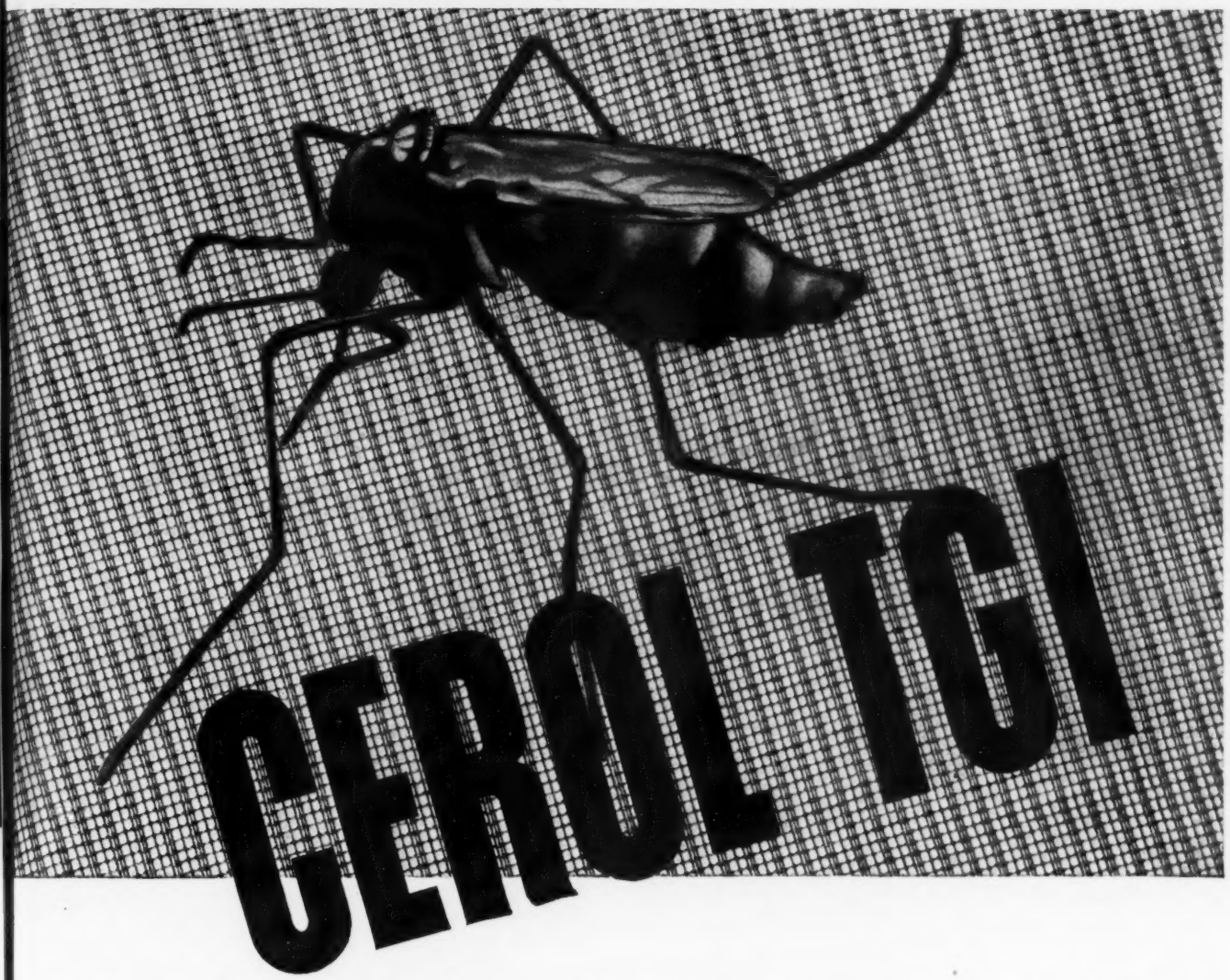
. . . based on *Finnell's* forty years of specialized service in treating and maintaining all types of floors. For consultation, free floor survey, or literature, phone or write nearest *Finnell* branch or Finnell System, Inc., 1911 East St., Elkhart, Ind.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES



WATERPROOFING AND MILDEWPROOFING OF COTTON GOODS COMBINED IN ONE SIMPLE OPERATION . . .

At Last! — A Stable Emulsion. Now Sandoz presents a new member of the well-known CEROL family, a combined waterproofing and mildewproofing agent distinguished by extreme stability. CEROL TGI ends the danger of time lost in re-processing. By combining two operations in one, CEROL TGI greatly speeds up production.

Meets Government Specifications. CEROL TGI has established high standards in spray and mildew-resistance tests. Non-toxic, and therefore suitable for garments in contact with the skin, CEROL TGI is being put to immediate use for water-and-mildewproofing **mosquito netting** used in the tropics.

Saves Time and Manpower. Applicable to any cotton goods, CEROL TGI is easy to use with your normal cotton finishing equipment, such as padder, quetch or jig. Regular cans or frames are suitable for drying; no baking or curing is required. As well as saving production time, CEROL TGI, successfully used by relatively unskilled personnel, helps solve your manpower problem. Write for full details, naming your application.

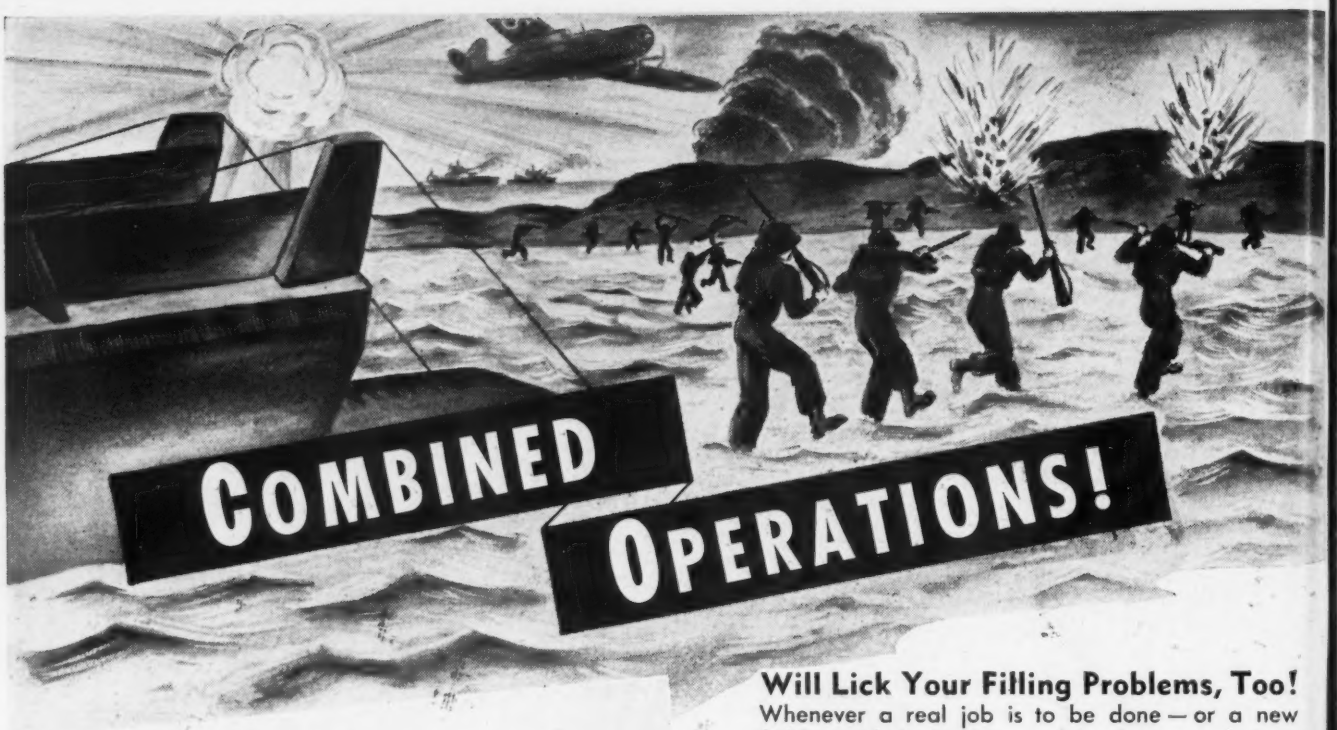
SANDOZ CHEMICAL WORKS, INC.

61 Van Dam Street, New York, N. Y.

Sandoz thinks ahead with textiles

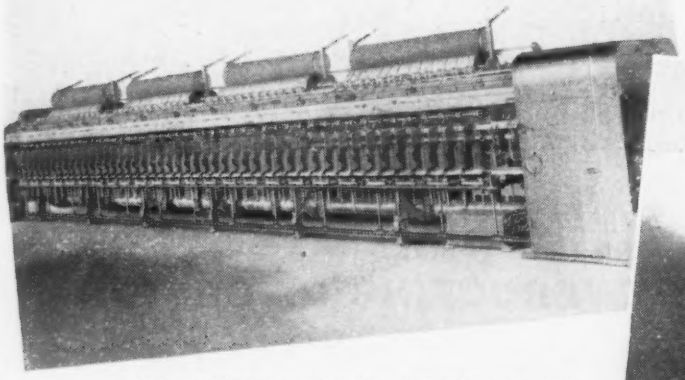
SANDOZ

Boston, Mass. Charlotte, N. C. Paterson, N. J. Philadelphia, Pa. Providence, R. I. Chicago, Ill. Los Angeles, Calif.

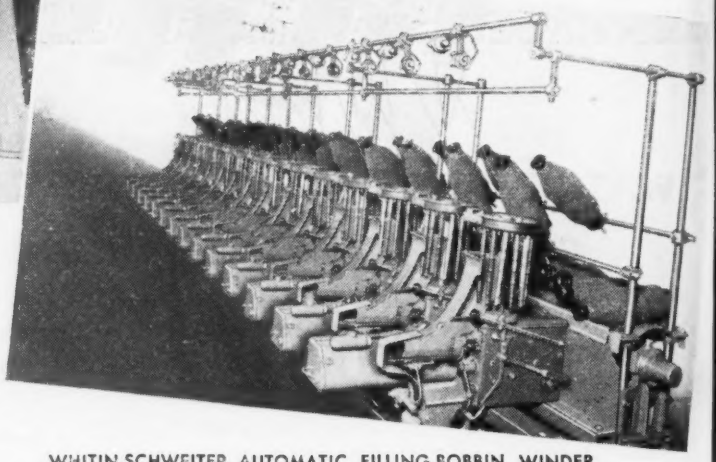


Will Lick Your Filling Problems, Too!

Whenever a real job is to be done — or a new field invaded, the forces of land, sea and air — each *with its own highly specialized equipment* are COMBINED to produce the best results — most rapidly — most efficiently — and their success is a matter of record.



WHITIN MODEL "E" WOOL SPINNING FRAME



WHITIN-SCHWEITER AUTOMATIC FILLING-BOBBIN WINDER

There's the tip-off! *Highly specialized equipment in effective combination.* You, too, are fighting a "battle" — a highly competitive battle right in your own mill. You, too, have problems to solve — objectives to gain — and you, too, have "weapons" and "soldiers". But, are your weapons equal to the task — are they especially designed for the work they have to do — are they being used in *effective combination?* If there is any doubt in your mind, then it's time to investigate Whitin equipment. For high-grade filling, spin your yarns on Whitin's famous Model "E" Wool Spinning Frames — get larger packages, fewer knots, less doffing, higher production.

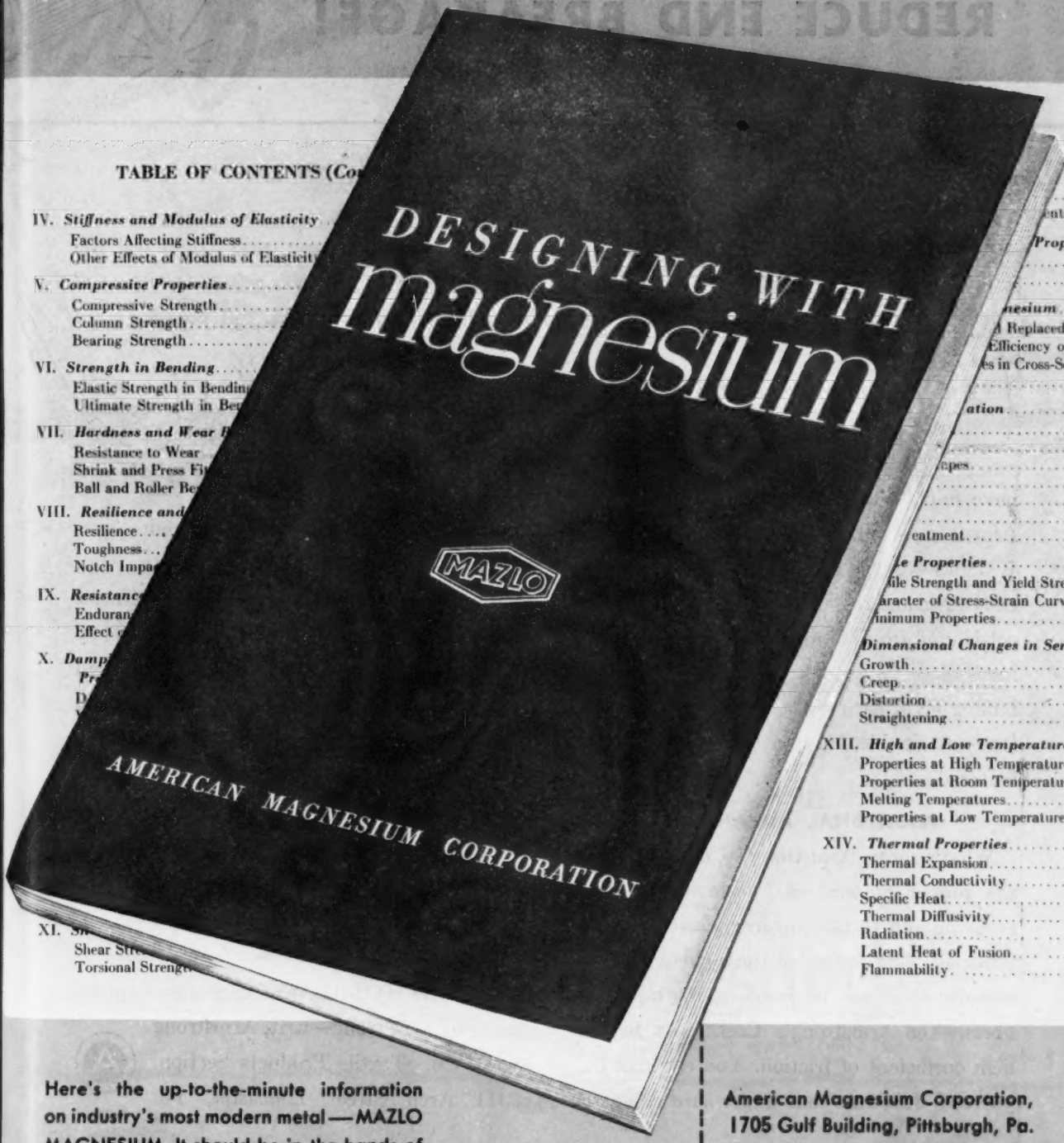
Then follow through with the new Whitin-Schweiter Automatic Filling-Bobbin Winder — the perfect medium for converting large spinning-frame bobbins to loom bobbins, efficiently, rapidly, economically. You can't afford to overlook the possibilities of this exciting combination in laying your post war plans. Investigate now! Ask us to show you how these machines can help *you* — or write today for circulars.

WHITIN MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS, U. S. A.

CHARLOTTE, N. C. **ATLANTA, GA.**

Send for a FREE COPY *of this New Book*



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Here's the up-to-the-minute information on industry's most modern metal—MAZLO MAGNESIUM. It should be in the hands of every designing engineer, every engineering department. Whether you are designing wartime products of magnesium or thinking about how you can cut the weight of postwar products, this book will help you. It's chock-full of answers to many design problems.

Use the coupon to send for your free copy today!

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

American Magnesium Corporation,
1705 Gulf Building, Pittsburgh, Pa.
Please send me a free copy of the new book, "Designing with Magnesium".

Name_____

Title_____

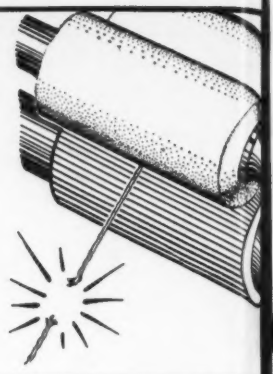
Company_____

Address_____

_____

_____

HERE'S A PROVED WAY TO REDUCE END BREAKAGE!

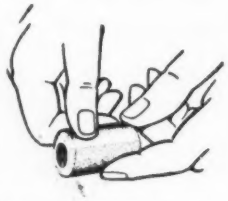


● With more poundage the big objective today, it's mighty important to reduce end breakage as much as possible. Thousands of mill operators and superintendents have found that the way to do it is to use Armstrong's Cork Cots.

Here's why these seamless cots mean less ends down and reduced top roll lapping: Every cot is uniform in density. There are no soft or hard spots to grip the yarn unevenly. And buffing gives each cot a true, concentric surface—attainable only with a manufactured material.

ADDITIONAL ADVANTAGES

What's more, Armstrong's Cork Cots have the proper amount of "cushion" to resist grooving and to take up irregularities in bottom rolls. The surface of these cots is velvety smooth; there are no rough spots to pick up fibers. Yet Armstrong's Cork Cots have a high coefficient of friction. You can test this yourself. Just rub your finger *hard* along the surface of one of these cots. You'll feel the friction—the "grip." *This grip lasts for the full life of the cot.* For, cork roll coverings are "non-slicking."



All of these advantages mean proper drafting . . . less slippage . . . reduced end breakage. In addition, Armstrong's Cork Cots prevent "eye-browing" and minimize clearer waste. And, important too, you'll find these cots the most economical roll coverings you ever used. They have a long initial life, and each cot can be rebuffed three to four times—for a total of four to five service lives!

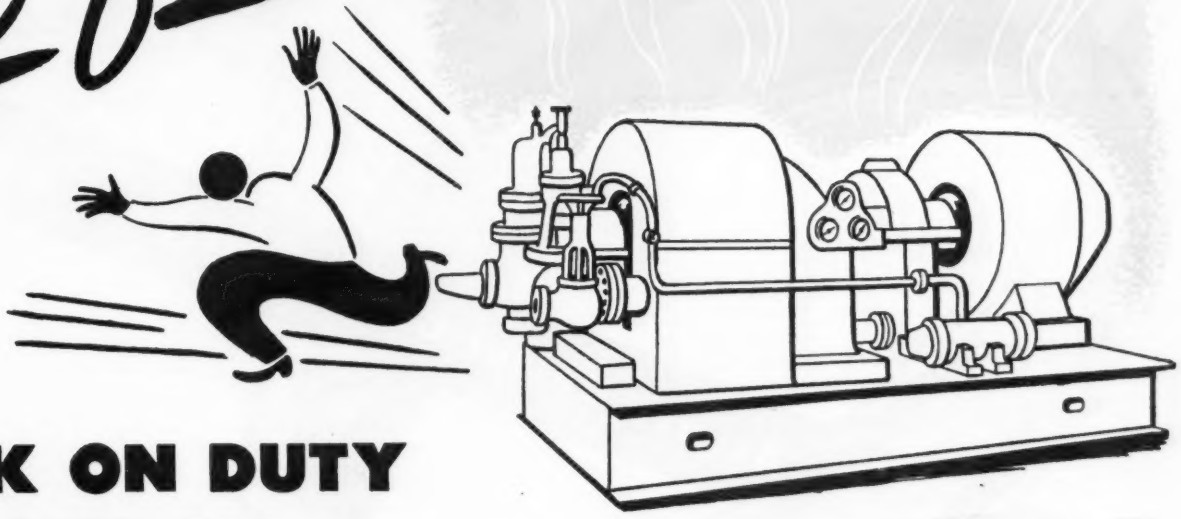
No wonder Armstrong's Cork Cots are now serving more spindles than any other roll covering. For complete facts about these cork cots—as well as the synthetic rubber cots and aprons made by Armstrong—write Armstrong Cork Co., Textile Products Section, 8311 Arch Street, Lancaster, Pa.

BETTER RUNNING WORK — MORE POUNDAGE

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

on fire Friday



BACK ON DUTY MONDAY..

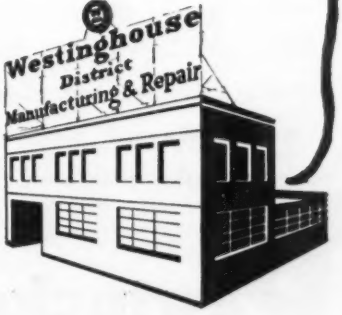
FRIDAY NOON—1,000 KW TURBINE-DRIVEN GENERATOR FAILED AND FIELD CAUGHT FIRE. FIELD REMOVED AND DELIVERED TO WESTINGHOUSE DISTRICT MANUFACTURING AND REPAIR PLANT AT 10 P. M. FRIDAY. SHIELDS PULLED, NEW LEADS INSTALLED, BURNED INSULATION REPLACED. UNIT BACK ON JOB IN WAR-BUSY MILL AT 6:30 A. M. MONDAY—IN TIME FOR START OF WEEKLY SHIFT.

Westinghouse

DISTRICT MANUFACTURING AND REPAIR

J-90490-A

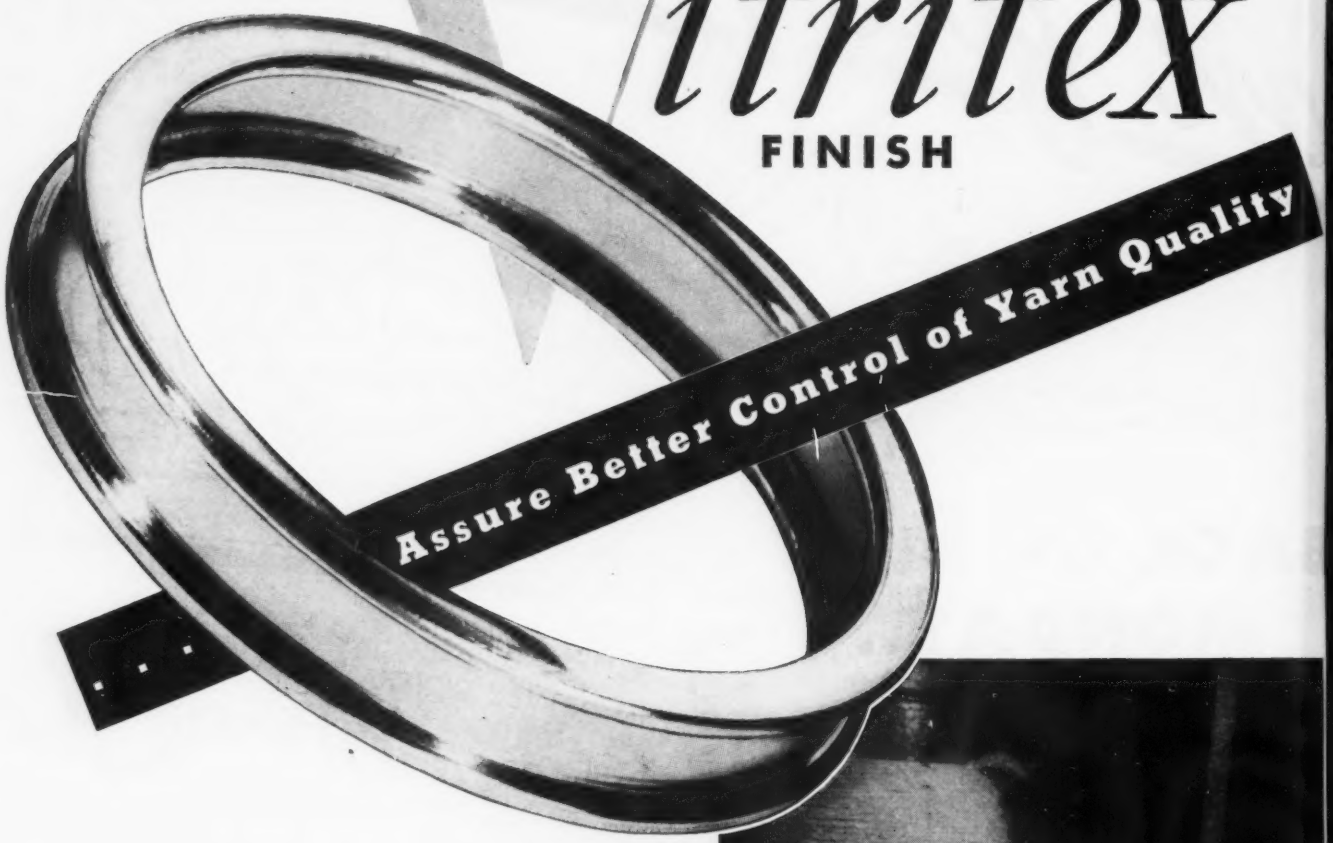
WHEN **ELECTRICAL EQUIPMENT NEEDS MAINTENANCE OR REPAIR . . . PHONE THE NEAREST OFFICE OF WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY FOR**



EMERGENCY SERVICE

33 M & R PLANTS . . . ONE NEAR YOU!

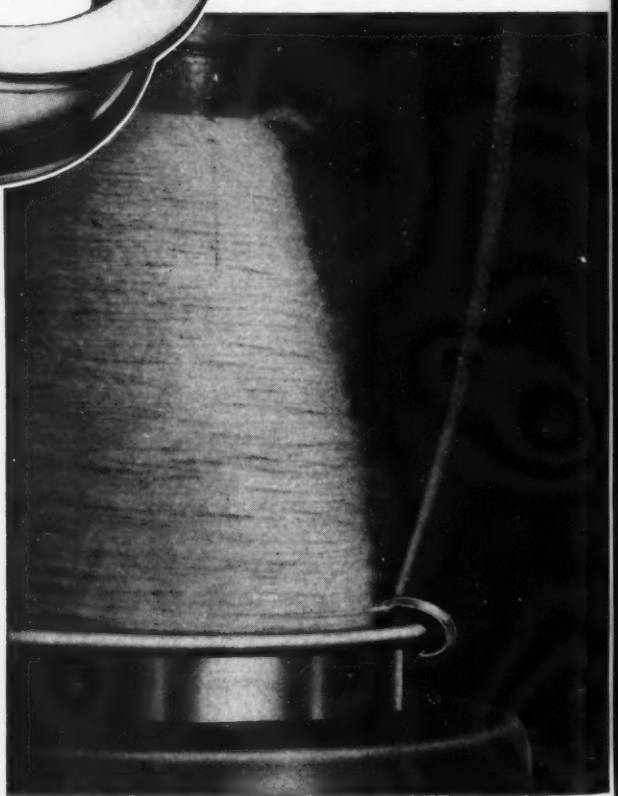
PAWTUCKET RINGS *Vitritex* FINISH



Many factors contribute to the spinning of good yarn . . . and the ring is one of them. When old and worn it affects the performance and life of the traveler—and thus indirectly affects the quality of the yarn by causing variations in the size and tension of the balloon.

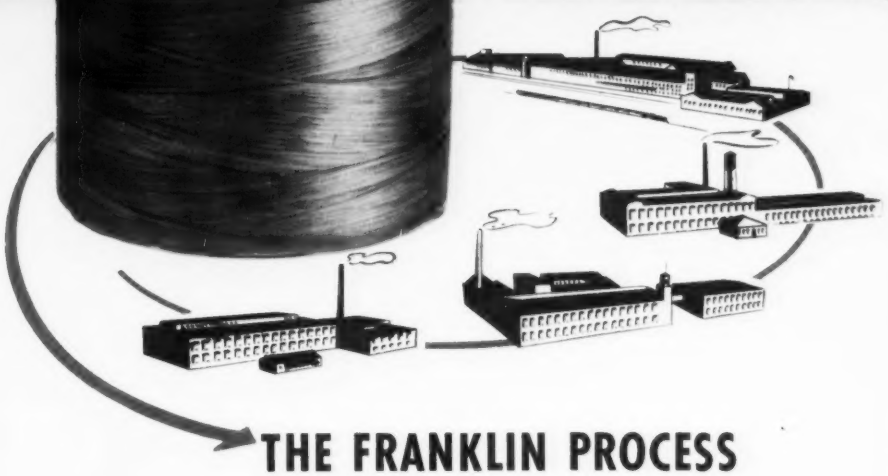
The efficiency of a ring depends upon the permanence of its finish. The finish on a Pawtucket Ring is an exclusive development. It is glass-smooth, hard as granite, and highly resistant to wear. The texture of this finish is so fine grained that it is nearly non-porous. Thus it is almost impervious to the tarnishing effects of moisture in the highly humidified spinning room.

Pawtucket Rings are a definite contribution to good spinning, steady production and better traveler performance. We will gladly furnish samples on which you can make your own tests.



GIVE YOUR TRAVELERS
"A TURN FOR THE BETTER"

Pawtucket SPINNING RING COMPANY, CENTRAL FALLS, RHODE ISLAND
(Subsidiary of Saco-Lowell Shops)



THE FRANKLIN PROCESS
"SHUTTLE" SYSTEM
HOW YOU PROFIT BY IT

Providence, Philadelphia, Greenville, Chattanooga, — it makes no difference in which Franklin Process plant your yarn is dyed; you'll still get the same dyeing formula, the same fastness of color and the same working quality of yarn.

This is because our plants are constantly "shuttling" information. Thus the experience of any one plant is multiplied by four.

Orders are "shuttled" in the same way. If one plant is too busy to make satisfactory deliveries of your yarn, it can transfer the business to another plant without jeopardizing quality, and you avoid unnecessary delay.

It's GOOD INSURANCE to use Franklin Process Colors.

FRANKLIN PROCESS — *Yarn Dyers and Colored Yarns* — Providence, Philadelphia, Greenville, Chattanooga. New York Representative, 40 Worth Street; Chicago Representative, 100 West Monroe Street.

Franklin Process

★ LARGEST PACKAGE DYERS IN THE WORLD

★ **Our Greenville plant, Southern Franklin Process Co., regularly dyes yarns for fabrics such as these.**

BETTER GET ANOTHER BASKET, MISTER!

By no means do you "put all your eggs in one basket", when you buy card clothing products from Ashworth, for this company has —

3 FACTORIES which assure an uninterrupted supply of card clothing. If one factory is temporarily disabled, another factory can "pinch hit" for it.

6 REPAIR SHOPS which facilitate convenient and prompt repairs and which again insure you against emergencies.

7 DISTRIBUTING POINTS which speed up deliveries of those items we have in stock and facilitate personal contacts when the mill has card clothing problems.

From whichever source they come Ashworth Products are dependable, for they're made by "pioneers in card clothing".

Ashworth Service is equally dependable, also unique. Ask us about Ashworth Surveys.

ASHWORTH BROTHERS, INC.
***Woolen Div.*, AMERICAN CARD CLOTHING CO.**
Fall River*†‡ Worcester*‡ Philadelphia*†‡
Charlotte†‡ Greenville†‡ Atlanta†‡ Dallas†‡
(Textile Supply Co.)
**Factory †Repair Shop ‡Distributing Point*

ASHWORTH
PIONEERS IN CARD CLOTHING

PRODUCTS AND SERVICES: Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for all Types of Napping Machinery • Brusher Clothing and Card Clothing for Special Purposes • Lickerin Wire and Garnet Wire • Sole Distributors for Platt's Metallic Wire • Lickerins and Top Flats Reclothed.

AMERICA'S WOMEN ANSWER THE CALL...

Nearly 850,000 Spin and Weave for Victory

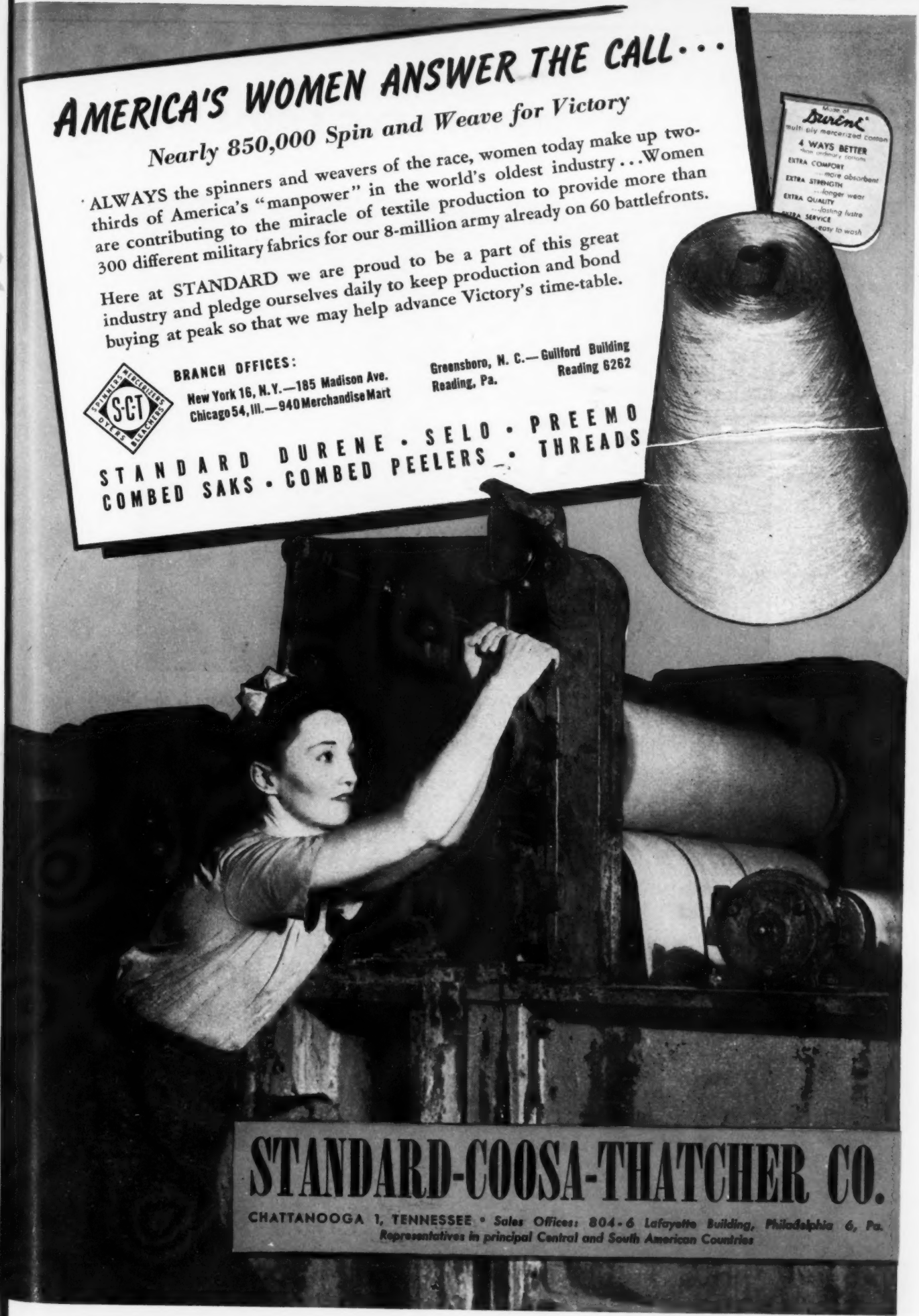
ALWAYS the spinners and weavers of the race, women today make up two-thirds of America's "manpower" in the world's oldest industry...Women are contributing to the miracle of textile production to provide more than 300 different military fabrics for our 8-million army already on 60 battlefronts.

Here at STANDARD we are proud to be a part of this great industry and pledge ourselves daily to keep production and bond buying at peak so that we may help advance Victory's time-table.

BRANCH OFFICES:
New York 16, N.Y.—185 Madison Ave.
Chicago 54, Ill.—940 Merchandise Mart
Greensboro, N. C.—Guilford Building
Reading, Pa. Reading 6262

S-C-T SPINNERS MERCERIZERS DYERS BLEACHERS

STANDARD DURENE • SELO • PREEMO
COMBED SAKS • COMBED PEELERS • THREADS

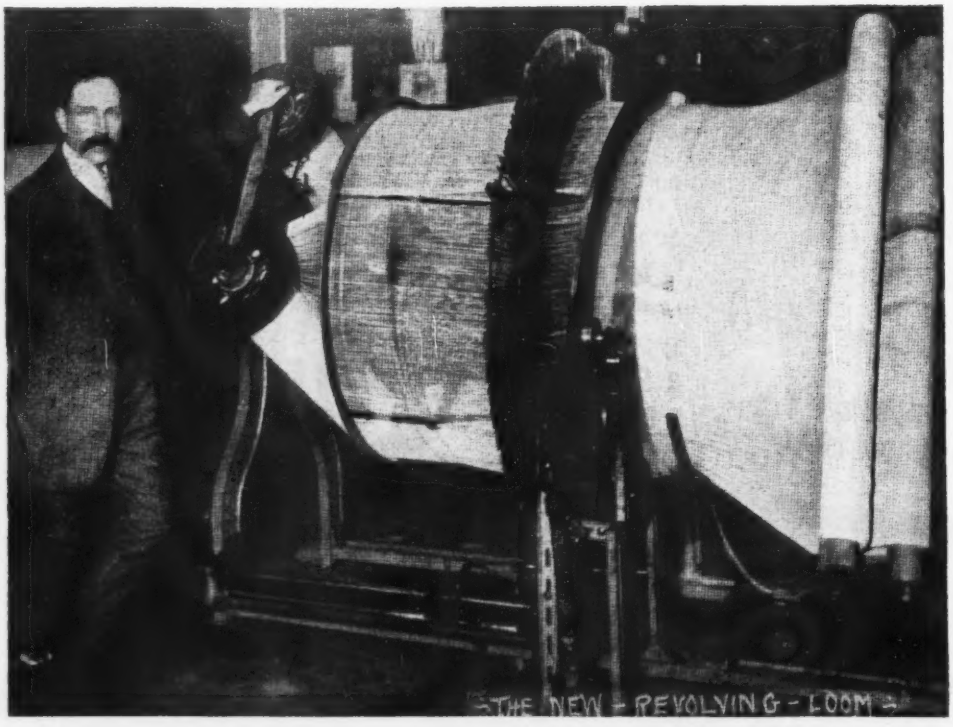


STANDARD-COOSA-THATCHER CO.

CHATTANOOGA 1, TENNESSEE • *Sales Offices: 804-6 Lafayette Building, Philadelphia 6, Pa.*
Representatives in principal Central and South American Countries

"NEW" REVOLVING LOOM

(CIRCA 1895)



To build the "perfect" loom many men have tried many things. Among them is the "new" revolving loom shown above, built in the early 1800's. We do not know the inventor nor the fate of the loom, but we are certain that it added to the sum-total of loom building knowledge.

SINCE the invention of the first fancy loom in 1837 by William Crompton, C&K has tried many ideas. Some were as fantastic as the revolving loom above. Some were found workable however, and it is these that constitute the vast reservoir of experience and loom-building skills found at C&K.

Modern C&K looms are the product of all that has gone before. Some of the ideas expressed in them originated at C&K, but many sprang from our close mill relationships. It is for this reason that we welcome any discussion, at any time, that may result in lower weaving costs, or better fabrics, or better service to our customers.

When better looms are built they will carry this trade mark:

CROMPTON & KNOWLES LOOM WORKS

WORCESTER, MASSACHUSETTS - U.S.A.

Allentown, Pa. Philadelphia, Pa. Charlotte, N. C.—Crompton & Knowles Jacquard & Supply Co., Charlotte, N. C.

The One Constant Ingredient

Every Dayco Roll Covering made by Dayton Rubber contains one ingredient which never varies. Wartime restrictions can never affect it. It is mixed into every compound of synthetic rubber and woven into every inch of fabric destined for Dayco Roll Coverings.

This constant ingredient is the sum total of Dayton Rubber's 37 years of continuous development, processing and application of rubbers and fabrics of every type. It is the residue of thousands of man-hours of patient research, practical testing and controlled manufacturing ability.

This constant ingredient is the technical knowledge and experience you would naturally expect to find built into every Roll Covering by Dayton, originators and pioneers of Synthetic Rubber Products since 1934.

So whether the Roll Coverings you use are made of today's synthetics or tomorrow's "X" materials need not concern you — so long as they bear the name which stands for Technical Excellence over the years.

THE DAYTON RUBBER MFG. CO.
DAYTON 1, OHIO • WAYNESVILLE, N. C.
Main Sales Office: Woodside Bldg., Greenville, S. C.

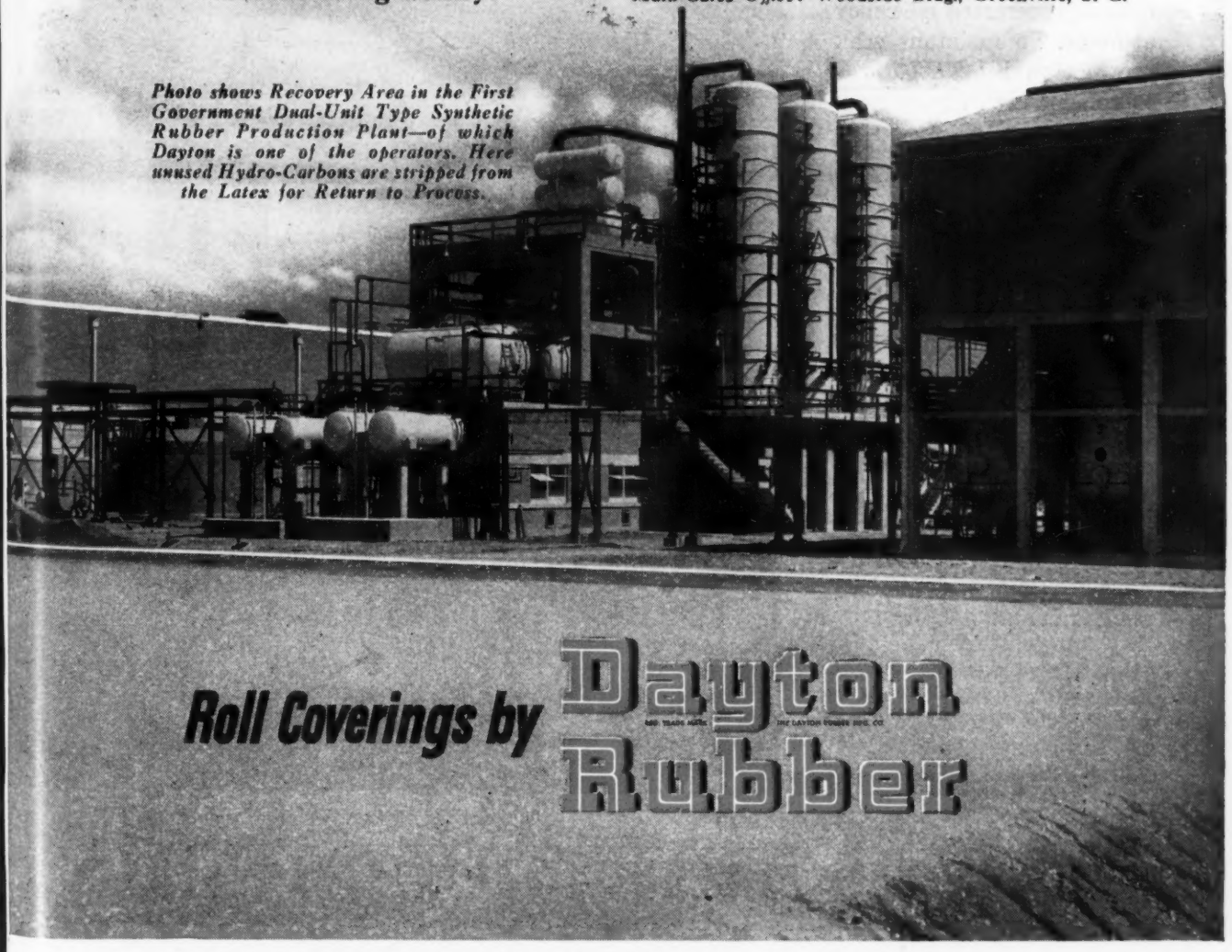


Photo shows Recovery Area in the First Government Dual-Unit Type Synthetic Rubber Production Plant—of which Dayton is one of the operators. Here unused Hydro-Carbons are stripped from the Latex for Return to Process.

Roll Coverings by Dayton Rubber

KEEP BACKING THE ATTACK—BUY MORE WAR BONDS

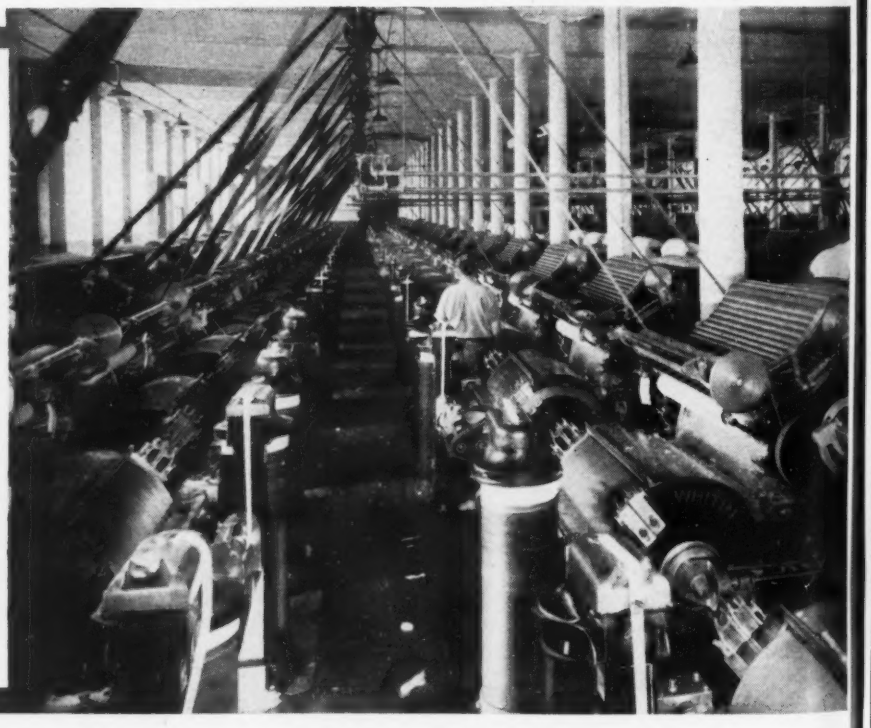
INVASION ABROAD demands increased efficiency at home. To maintain peak production by *TEXTILE* equipment use . . .

Official U. S. Navy Photograph

. . . . . SINCLAIR LUBRICANTS . . .

Lily White Oils reduce spinning loads and power loss at all spindle speeds. No-Drip Lubricants for top rolls resist throw under severe operating conditions. Bearing Grease AF for plain bearings has the additional quality of being *water soluble* and *neutral* in color. Sinclair also provides quality oils for *Knitting Machinery.*

(Write for "The Service Factor"—published periodically and devoted to the solution of lubricating problems.)



SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY (INC.), 630 FIFTH AVENUE, NEW YORK 20, N. Y.

HAVE *YOU* HELPED AMERICA TODAY?

Here's How

To assure quick, safe unloading of Liquid Caustic Soda Shipments

Thanks to the splendid co-operation of consignees, railroads and shippers, a great wartime transportation record is in the making. As you know, *all* railroad cars are sorely needed. You can perform a genuine service for America by expediting the unloading of *all* shipments you receive—particularly where cars of special design are used, such as those required for Liquid Caustic Soda.

IMPORTANT

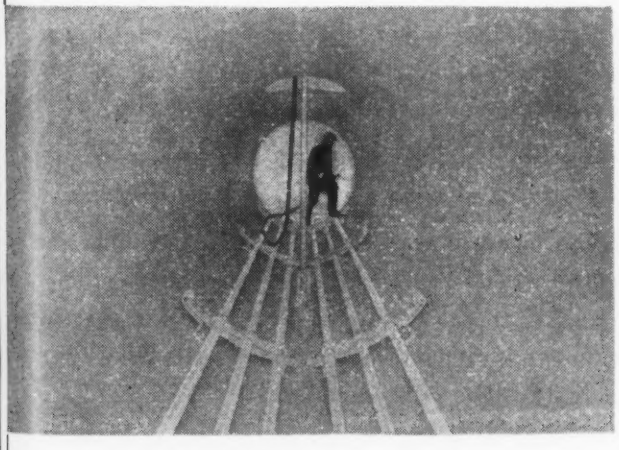
PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION

Send for Free Instruction Card

To help remind handlers of Liquid Caustic Soda of the care necessary in unloading tank cars, a special instruction card has been prepared by Columbia. Posted in prominent locations, this 11" x 14" card will help to prevent accidents and errors which cause delays and disrupt your operations. Cards are yours for the asking, regardless of your Caustic Soda supply. Send for yours today.

Maintenance Where It's Most Important

Columbia's patented lining for tank cars is one of the important factors enabling the first successful and practical shipping of 73% Liquid Caustic Soda. That's why this lining is carefully checked and maintained in perfect condition at all times. Owing to the pressure of war work, the outward appearance of these cars occasionally suffers. But inside—where it really counts—Columbia tank cars are 100% efficient.



PITTSBURGH
PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION
GRANT BUILDING . . . . PITTSBURGH (19), PA.
Chicago • Boston • St. Louis • Pittsburgh • New York
Cincinnati • Cleveland • Minneapolis • Philadelphia • Charlotte

COLUMBIA CHEMICALS

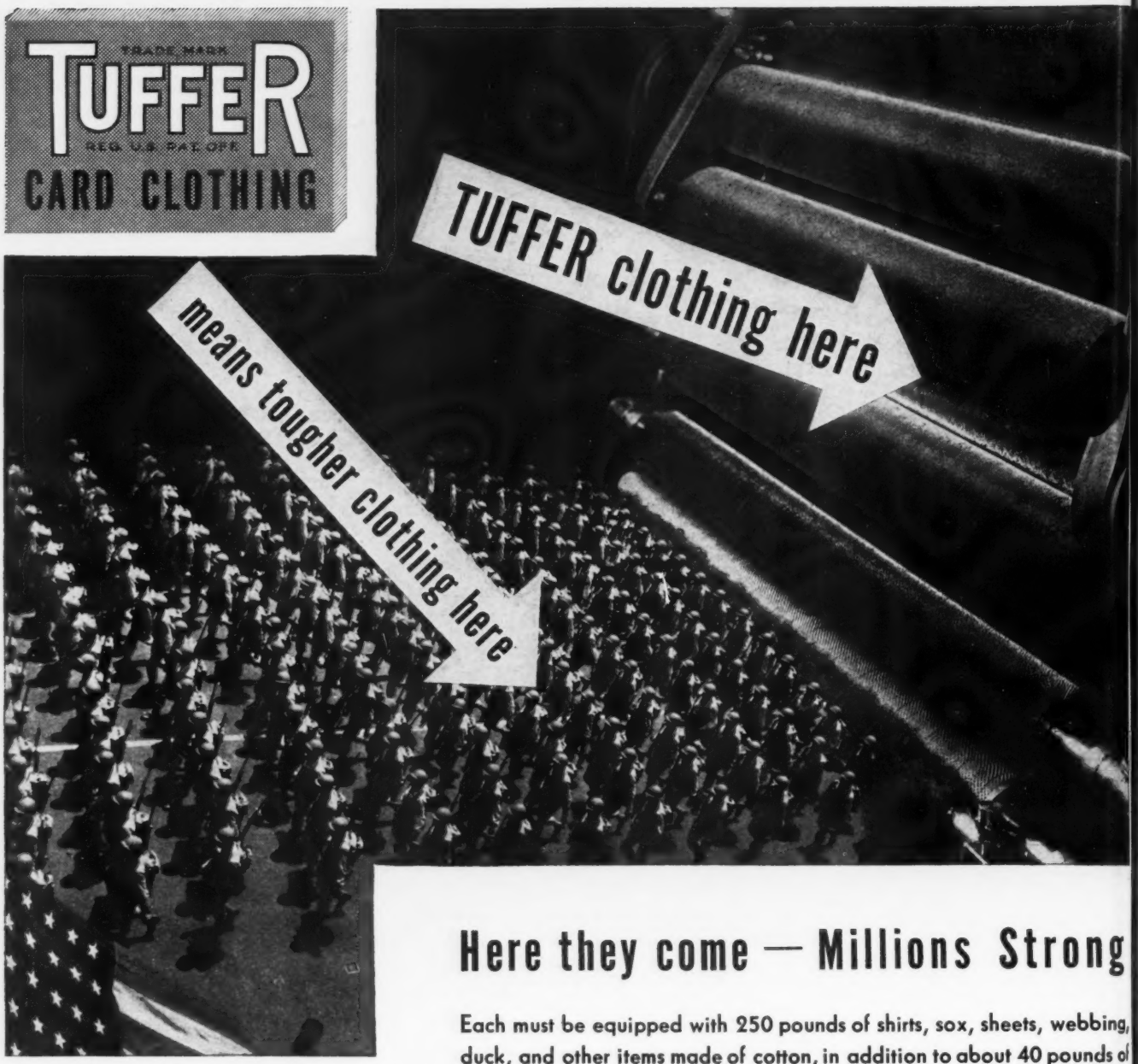
SODA ASH · CAUSTIC SODA · LIQUID CHLORINE · SODIUM BICARBONATE · SILENE EF (Hydrated Calcium Silicate)
CALCIUM CHLORIDE · SODA BRIQUETTES · MODIFIED SODAS · CAUSTIC ASH · CALCIUM HYPOCHLORITE
PHOSFLAKE · CALCENE (Precipitated Calcium Carbonate)

TRADE MARK

TUFFER

REG. U.S. PAT. OFF.

CARD CLOTHING



Here they come — Millions Strong

Each must be equipped with 250 pounds of shirts, sox, sheets, webbing, duck, and other items made of cotton, in addition to about 40 pounds of suiting, blankets, overcoating, and other products made of wool. All of this material must be processed by card clothing. *This is the initial step.*

Add to this the quantities of work clothes needed by war workers—on top of other civilian needs, and you see the "licking" your card clothing is taking.

Under these conditions you will appreciate the smooth performance of Tufferized Card Clothing. The Tufferizing Process is our exclusive patented process for making a more accurate and uniform product. Carders everywhere tell us it stays on the job longer, gives more uniform carding with less waste, and results in a nice smooth finish to coarse or fine yarns.

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

HOWARD BROS. MFG. CO.

WORCESTER, MASSACHUSETTS

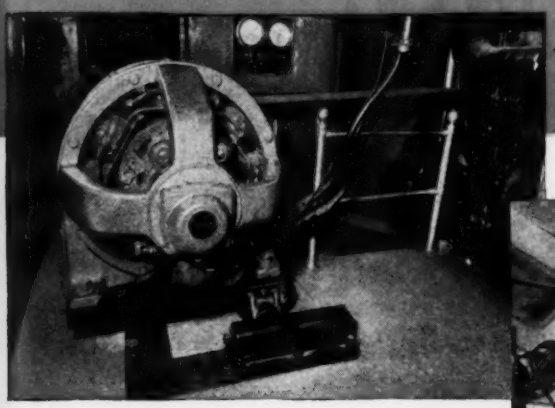
Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Dallas. **Canadian Agents:** Colwool Accessories, Ltd., Toronto.

ON SHORT CENTER DRIVES . . . ON MODERN GROUP DRIVES . . .

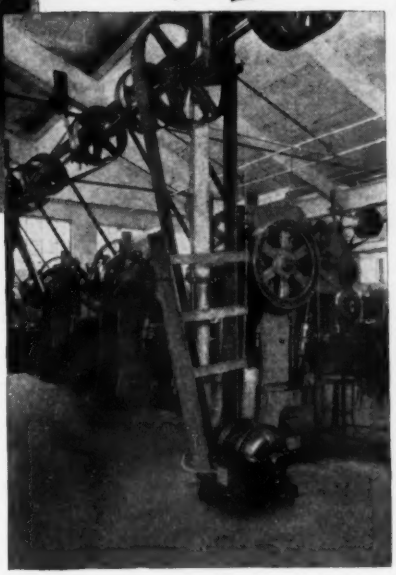
GRATON AND KNIGHT

Research LEATHER BELTING

DELIVERS UP TO 40% MORE POWER —HAS UP TO 4 TIMES LONGER LIFE



V-belts replaced — maintenance eliminated. In one of Boston's leading theatres, two 20" Graton and Knight "Research" heavy double belts were selected to replace rubber V-belts on two tough compressor drives. The rubber V-belts had to be run at such high tension that they caused trouble with bearings, belts stretched excessively and the whole drive required undue maintenance. The "Research" belts, installed in 1936, have operated continuously the past seven years without repairs or maintenance . . . proof that "Research" saves time and money, delivers more power and has longer life on tough drives.



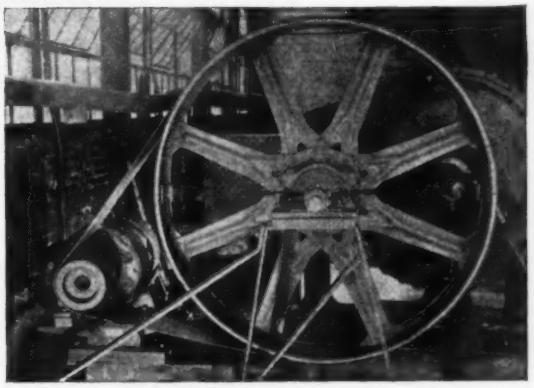
Tough vertical drive — no stretch with "Research". In a metal working plant in Attleboro, Mass., six drives identical to the one shown at left, belted with "Research", have been in operation for over a year without any maintenance or take-ups. These drives are nearly vertical and excessive stretch in the belts would cause the belt to fall away from the motor pulley and result in lost power . . . proof of the efficiency of G & K's method of removing initial stretch during manufacture.

Where chain drive failed "Research" succeeded. In a metal working plant in Pennsylvania, a 10" Graton and Knight "Research" medium double belt was selected for a tumbler drive, to replace a chain drive which was wearing out every six months. The "Research" belt, with pivoted motor base, has been in operation a year, and the department boss at the plant says of it: "Best drive in the department!" More proof that "Research" leather belting is best for heavy loads and shock loads and saves the user money by its long life.

HERE'S WHY "RESEARCH" BELTS ARE GETTING PREFERENCE...

Belt users have learned that the "built-in" pulley grip of "Research" belting — the result of carefully-controlled currying — provides up to 40% more power delivery than composition belts at the same tension. Non-elastic stretch is removed during manufacture by an exclusive process, and at the same time tensile strength is increased 15% above ordinary leather belts.

Patented "Tension-Cementing" — which distributes the cement uniformly while the plies are under tension — eliminates trouble from ply separation, and is an additional reason for specifying "Research" leather belting.



More pulleys are belted by Research than by any other brand!

GRATON & KNIGHT COMPANY
WORCESTER 4, MASSACHUSETTS

GRATON AND KNIGHT

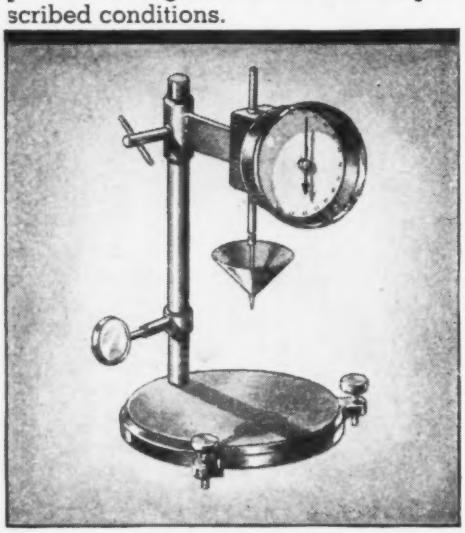
Graton & Knight is the only leather belting manufacturer with complete nation-wide service facilities. Branches in Chicago, Cleveland, Dallas, Detroit, Kansas City, Minneapolis, New York, Philadelphia, St. Louis, San Francisco; distributors in all industrial centers.

Look under "Graton & Knight" in Belting section of Classified Telephone Directory or THOMAS' REGISTER

PENETRAT

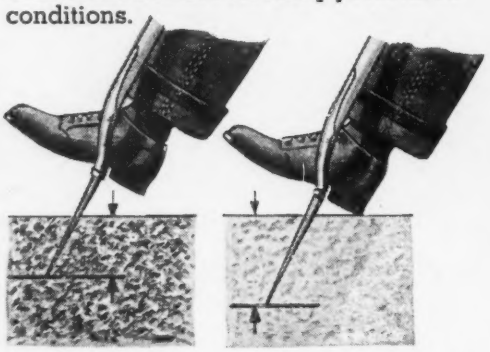
TIDEWATER LUBRICANIA

DEFINITION: The consistency or hardness of lubricating greases is generally expressed by the depth to which a standardized cone-shaped weight will penetrate the grease under definite prescribed conditions.



PENETRATION TEST: Following a carefully prescribed procedure the grease is brought to a temperature of 77°F. and the tip of the penetrometer cone is lowered until it just touches the surface of the grease. The cone is then quickly released for five seconds and the depth of travel of the cone is carefully noted. The average of five such tests at different points of the grease surface, measured in tenths of a millimeter, is reported as the Penetration or Consistency of the grease at 77°F.

If the grease was not worked before the test, it is reported as the "unworked" consistency. If the "worked" consistency is to be determined, the sample is first worked under carefully prescribed conditions.



EXAMPLES:

	A.S.T.M. "Worked" Consistency (77° F.)
Soft (No. 1) Cup Grease	310-340
Medium (No. 3) Cup Grease	220-250
Heavy (No. 4) Cup Grease	175-205
Hard (No. 6) Cup Grease	85-115

SIGNIFICANCE: The "worked" penetration is an indication of the tendency of the grease to leak or drip from a bearing, or its ability to flow under pressure in feed lines. However, the resistance to flow through narrow bearing clearances or the ability to support bearing loads are more nearly proportionate to the viscosity characteristics of the oil used in the manufacture of the grease. The "unworked" penetration of greases is subject to many variables and except for very hard greases has little significance.

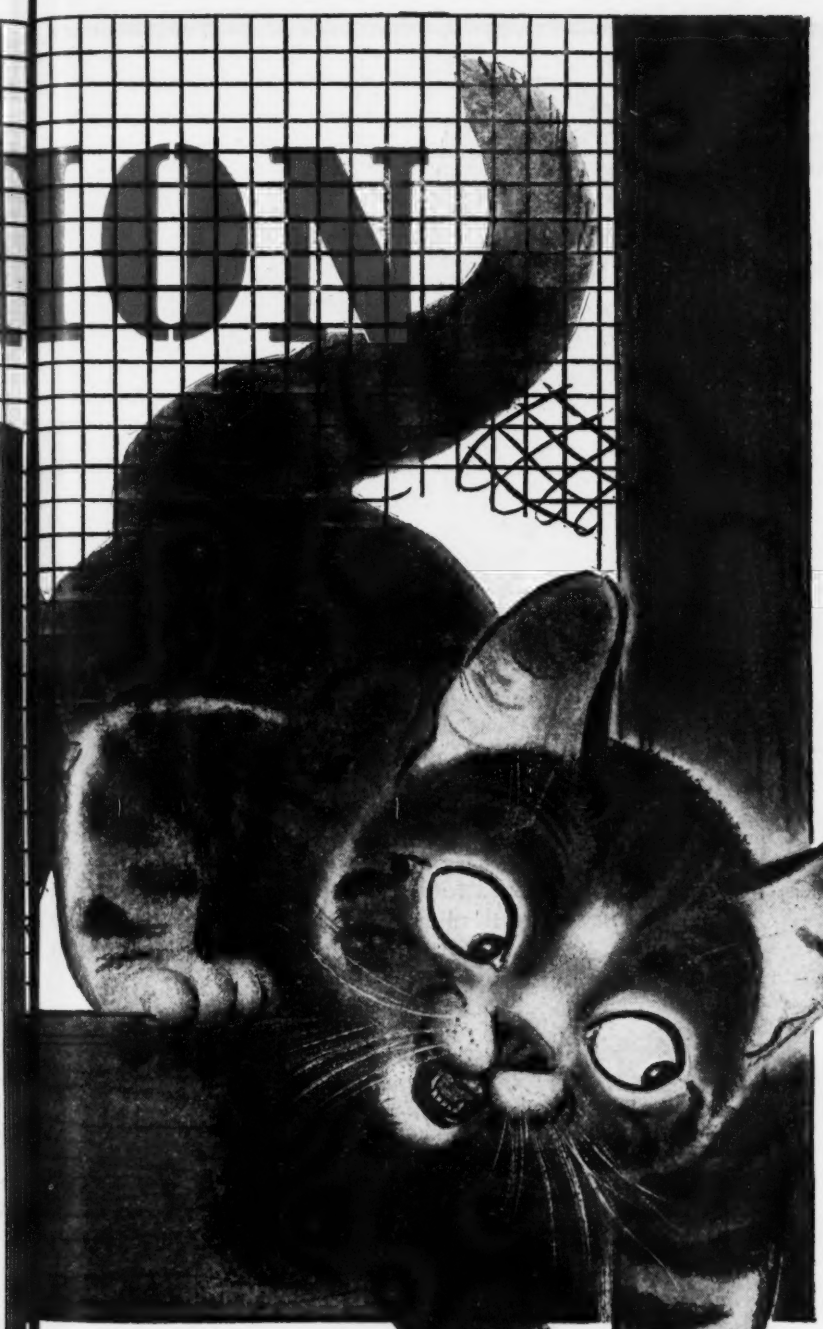
OIL IS AMMUNITION
USE IT WISELY!

DRUMS! DRUMS! DRUMS!
War needs make it extremely important that all empty drums be returned immediately.

INDUSTRIAL TYCOL OILS-GREASES

SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE

TYCOL



*This is the 7th of a series of informative messages concerning the meaning and significance of commonly used tests and terms employed to describe the characteristics of lubricating oils.

Tycol greases are scientifically compounded for all lubricating purposes, from textile spindles to steel rolling mills. Tycol greases when used for the recommended purpose afford maximum lubrication with minimum friction and leakage.

Whatever you need — whether it be a lubricating oil or grease — Tycol lubricants provide complete protection at low cost. Let a Tide Water engineer help you select the lubricant best suited to your job.

TIDE WATER

ASSOCIATED OIL COMPANY

MAKERS OF THE FAMOUS VEEDOL MOTOR OIL
Eastern Division: 17 Battery Place, New York 4, N. Y.
Principal Branch Offices:
Boston, Philadelphia, Pittsburgh, Charlotte, N. C.

INDUSTRIAL LUBRICANTS

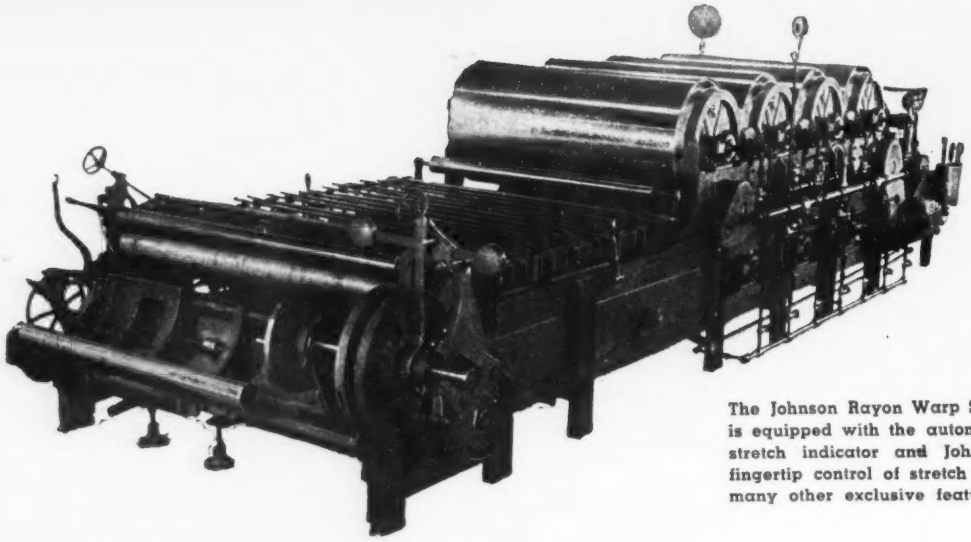
They All Agree—

"YOU CAN'T EQUAL JOHNSON FOR SERVICE"

Whenever mill men get together to talk about slashers, they all agree that Johnson service is "tops."

When need for parts replacements of any part occurs, mill men count on the overnight service to which Johnson has accustomed them even in these difficult days.

JOHNSON SIZERS
are doing a three shift job in countless mills today, with rarely time out for more than sketchy maintenance.



The Johnson Rayon Warp Sizer is equipped with the automatic stretch indicator and Johnson fingertip control of stretch and many other exclusive features.

Charles B. Johnson MACHINE WORKS

PATERSON NEW JERSEY

New! DU PONT SOLOMATIC PROCESS

Continuous Bleaching of Raw Wools with Sodium Peroxide . . . Low-Cost Bleaching Method Provides Softer and Loftier Wools

HERE it is at last. A sodium peroxide bleaching process for raw wool that is *continuous*. Not just a more efficient, convenient system, but a bleach that gives better results at substantial savings.

The "Solomatic" Process is designed for the production of peroxide bleaching solution from Du Pont DFF "Solozone" (sodium peroxide). "Solozone" is poured into a hopper of a mixing tank, where it is blended with spent bleach liquor and sulfuric acid piped up through a proportioning pump.

Except for the initial change of the peroxide into the feeder, the entire operation is automatic. Now being used for peroxide bleaching in the continuous wool scouring train, where it permits replacement of hydrogen peroxide.

DU PONT SOLOMATIC PROCESS gives softer and loftier wools. Because of better control, it provides a more uniform bleach. And it saves in many ways . . . on chemicals . . . on supervision . . . on labor.

Complete details about this new and significant Du Pont contribution to the textile industry are contained in the booklet: "Du Pont Solomatic Process." Write for a copy today. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington, Delaware.

BACK THE ATTACK — WITH WAR BONDS

DU PONT

PEROXIDES

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

A Recent Installation of Four SARGENT STOCK DRYERS
in a Progressive New England Worsted Mill

A Production Problem Solved -

• • • THIS IS THE IMPORTANT FACT!

Advantages of this modern installation

— Stock dried at lower temperatures — The use of low pressure steam
— Lower power consumption — Less floor space required
— Costly repairs and breakdowns eliminated — A better product

Why not let SARGENT solve your Drying troubles ?

Important Defense Items by SARGENT	Machines for Smokeless Powder Plants • Machines for Synthetic Rubber Plants • Textile Machinery for the manufacture of uniforms • Machined parts for large caliber guns

C. G. SARGENT'S SONS CORPORATION

Graniteville, Massachusetts, U.S.A.

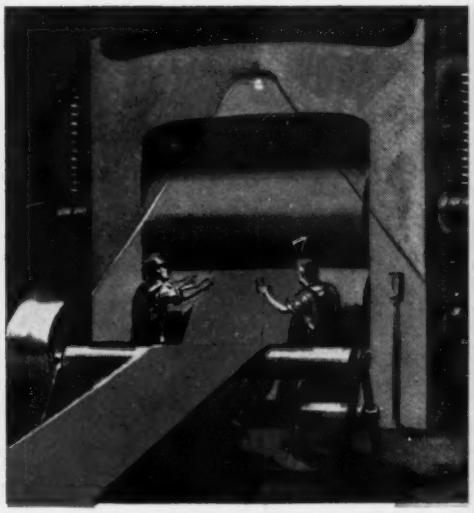
MANHATTAN FLEXLASTICS*

Bring Tomorrow One Day Nearer

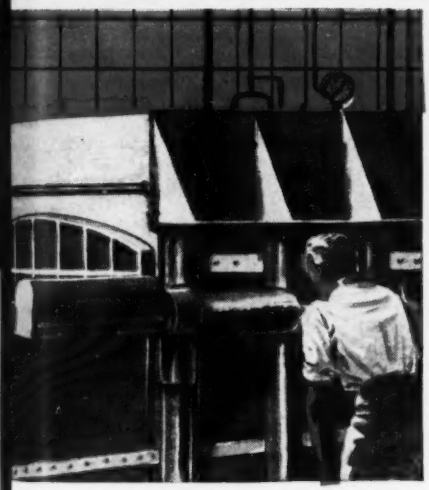
for users of Industrial Rubber

*...ber manufacture is a blending of art and ...nce. At MANHATTAN, it begins with a ...nt automatic mixer blending the right ingredi... in correct proportions to assure ultimate ...LEXLASTICS.**

*Great rolls "plasticize" the mixture to give it uniformity and homogeneity. Skill and experience must join hands with formulae, equipment and engineering to deliver the lasting service of FLEXLASTICS.**



Great calenders bond FLEXLASTICS intimately to the built-in strength members at MANHATTAN. These may be of fabric or specially twisted cord or metal, or combinations of these.*



Vulcanizing FLEXLASTICS to give lasting ...ervice calls for close controls, skill and a long ...ckground of experience. Different techniques ...re required for different FLEXLASTICS.*

THE use of "manufactured" rubbers—commonly termed as synthetic rubber—is by no means a temporary expedient.

The special-purpose synthetic rubbers—as used in MANHATTAN Paranite-G.O.P. products—have become well established in many applications where they render superior service to natural rubber.

They are the fruit of long experience and of the same pioneering policy which made MANHATTAN the first American rubber manufacturer to initiate a continuous program of research in the industrial applications for the special-purpose synthetic rubbers then available.

To this long experience in the art of compounding and processing all available types of rubber was added the knowledge of how to make and where to place *built-in strength members*—acquired by engineering research and protracted service tests. . . . This was an additional ingredient to the 250-odd from which more than 1,000 different MANHATTAN compoundings derived increased strength, greater flexibility, cohesion and elasticity—to such a degree that it justified the coinage of a new term—FLEXLASTICS.*

The word "engineered"—long used by MANHATTAN—is well supplemented by this term "FLEXLASTICS*" so descriptive of the qualities essential in rubber products that have to deliver service under war strain.

FLEXLASTICS* is the assurance that the "engineered" characteristics are in every MANHATTAN flat or V-belt; conveyor or elevator belt; air, steam, water or other type hose; or other item regardless of the kind of rubber from which it is now made.

Condor

...veyor and ...levator Belt ...pensated Belt ...mission Belt ...lt ...Hose ...ractors Hose ...Hose ...draulic Hose ...and Gasoline ...Hose ...d Blast Hose ...ion Hose ...ion Hose ...ter Hose

Chute Lining
Launder Lining
Industrial Brake Blocks and Lining
Molded Rubber Goods

Rubber Lined Tanks
Rubber Covered Rolls

Abrasive Wheels
Bowling Balls

THROW YOUR SCRAP INTO THE SCRAP!

50 YEARS OF RESEARCH *For a business to have lived 50 years and grown continuously, is evidence of vitality and vision. The zealous preservation of that vitality and vision to be applied to production, service and research, is the obligation which management at MANHATTAN has inherited from its founders. FLEXLASTICS* are another stage in the discharge of that obligation.*

ARMY E NAVY

*The term FLEXLASTICS is a MANHATTAN trade mark. Only MANHATTAN can make FLEXLASTICS.

...KEEP AHEAD WITH MANHATTAN

THE MANHATTAN RUBBER MANUFACTURING DIVISION
of RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES PASSAIC, NEW JERSEY

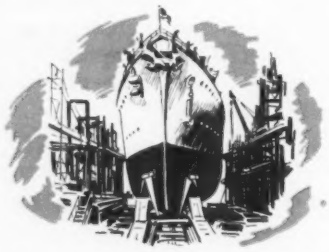
The Story of a SECRET AIR

...Now on The U.S.S. Helena 40 Fathoms Down—In Kula Gulf!

PERHAPS YOU'VE HAD WIND of this story already. It's being talked about in engineering circles, among production men, even executives. Make no mistake — when a development comes along, so different that the U. S. Navy takes it over — lock, stock and barrel, that's big news — and has implications for all business and industry.

For its beginning let's go back to before Pearl Harbor. America's fighting fleet was being designed along lines that packed more power and more armament, ship-for-ship, than anything else afloat. Space for ammunition and men had to be shrunk to the irreducible minimum. Was there any chance of saving weight and space in ventilating fans? Could the

1940—MORE SPEED AND ARMOR MEANS LESS SPACE FOR AUXILIARIES



compactness of an axial flow fan be combined with the performance of a centrifugal fan? From existing knowledge of fan performance it seemed impossible. But, since one battleship needs as many as 300 separate ventilating systems, an attempt must be made.

Here was a job for the best engineering brains in the country. The U. S. Navy Bureau of Ships wrote the toughest specifications they could devise — and then subsidized two separate research authorities to develop a fan to meet them. One was the country's outstanding industrial research laboratory — the other, one of the nation's foremost experts on aerodynamics. The results turned in were good, but not good enough. The fans did not deliver the volume and pressure required — and were above the acceptable noise level.

Time was slipping away and, for the United States, war

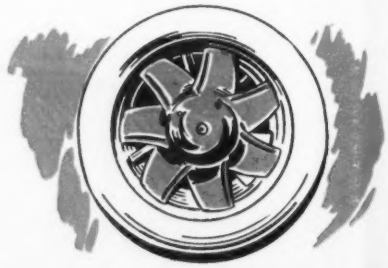
1941—THE NAVY ASKS THE IMPOSSIBLE— FINDS IT READY AND WAITING

was just over the horizon. Then the Navy came to Sturtevant and put the job up to us.

Here were the requirements — a fan to deliver 12,000 cubic feet a minute (50% more than they had been working toward before) at 3″ pressure and a speed of 1160 rpm. It would be ideal, of course, if it could operate at 1750 rpm because weight of the motor and size of the fan could be cut still further.

Now, as luck would have it, the Sturtevant Research Laboratory had been examining a new theory of designing propeller fans. When the Navy came to us, work had prog-

THE FAN THAT CAUSED ALL THE SHOUTING ABOUT AXIAL FLOW



STURTEVANT — ORIGINATOR OF THE NAVY'S

WEAPON

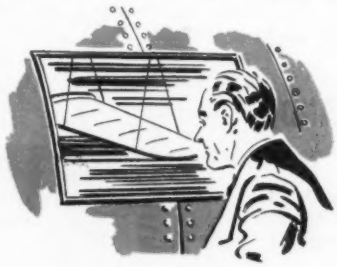
ressed to the point where construction of a test fan had just been completed. Although no experimental work had been done on the fan, we brought it out for inspection. At first glance it appeared to be exactly the fan the Navy men had dreamed of. On the test block it delivered 12,000 cfm at 3″ pressure — on the nose! And at 1750 rpm it showed a sound energy that was 40% under the Navy maximum! Performance astounded them — total efficiency 90%; static efficiency over 80% — better than anything ever achieved with centrifugal fans.

SENT TO SEA WHEN ONLY FOUR WEEKS OLD

Next came a trial run at sea. Less than four weeks after the test fan had been built, it was aboard the U. S. S. HELENA. Line officers were as enthusiastic about the lack of noise as the engineers had been about its performance. Success of the Sturtevant Victory Axiflo Fan, as it is now called, was written in the initial order for 280 units. Today, that original Axiflo Fan — the first, hand-built unit to embody this great step forward in air engineering, shares with the HELENA its hallowed grave in the waters of Kula Gulf.

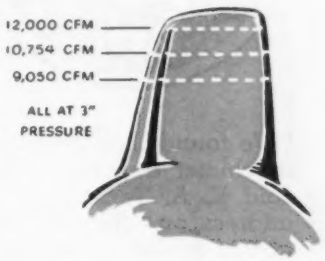
But let's return to the laboratory, for a minute with Harold F. Hagen, our Chief of Research. Here was a development that went right from the sketch pad, into the drawing room and the shop *without experimental development* — and then into large-scale production. How was this possible? Principally because it had been completely proved in theory, before any experiments were made. The new theory conceived by Mr. Hagen was based on the tests of airfoils in a wind tunnel. In putting this theory through its paces, however, he found that these tests could not be applied directly to a fan propeller. In the case of a plane, the air stream is changed only slightly whereas with a fan it is definitely curved. So he dropped the straight line of the airplane flow and substituted the curved line to get proper action of the fan blade — and then applied the airplane theory to that curved line.

THE AIRFOIL TESTS APPLIED TO A PROPELLER FAN



As the design progressed, the blade angles and area of blade surface proved to be just about equal to empirical designs. The result was a blade that does an equal amount of work throughout its entire surface — whether at the hub, the middle or the tip. Air delivery of a specific fan, for example, with blade lengths varied all the way from 46″ to 26″ was always at 3″ pressure — with a volume proportional to the length of the blades. Among the orders for the first 1,500 Axiflo Fans, there were 66 different sizes. These were completely covered with 8 standard fans — simply by changing the blade lengths.

THE RESULT OF A COMPLETELY THEORETICAL DESIGN



With the outbreak of war, Navy demands for Victory Axiflo Fans skyrocketed. Today, thousands of Sturtevant Victory Axiflo Fans are in service aboard battleships, cruisers, aircraft carriers, destroyers, subchasers — in fact, every type of naval vessel. But even Sturtevant's great shops were unable to fill the demand. Other manufacturers were impressed by the extraordinary success of the new type of fan and followed Sturtevant's lead. Two were successful, and are now supplying excellent fans of their own.

The Victory Axiflo Fan belongs to all America. It belongs to the men of the Navy who serve with it now and to the men of industry who are waiting to use it after Victory — to open new fields of heating, ventilating, air conditioning, mechanical draft and other applications where fans are used.

B. F. STURTEVANT COMPANY
Hyde Park Boston 36, Mass.

THE ANSWER TO YOUR WHYS AND HOWS — FREE ON REQUEST ➡

Glance over the brief advantages below and then turn your imagination loose on the implications of the Sturtevant Victory Axiflo Fan *in your work* after the war.

POWER SAVINGS — extremely high fan efficiencies — making important operating economies in large installations.

SPACE SAVING — only 60% of that required for other fan designs — with a similar saving in weight.

FLAT HORSEPOWER CHARACTERISTIC — effecting worthwhile power savings wherever fans are operated at varying loads.

EXTREME QUIET — less than 80 decibels, making it suitable for commercial heating, ventilating and air conditioning installations.

HIGH SPEEDS — permitting the use of standard high speed motors — saving both in weight and initial cost.

RANGE OF PRESSURES — from ½″ to 60″ water gauge — covering the entire field of commercial and industrial fan requirements.

VICTORY AXIFLO FAN

Sturtevant

REG. U. S. PAT. OFF.

Puts Air to Work

Southern Textile Men hear of I.C.S. RESULTS

"We found that the I.C.S. had exactly what we needed in its machinist apprentice course, which we promptly adopted", said E. A. Terrell, of the Terrell Machine Company, in an address on "Apprentice Training Will Help Overcome Shortage of Trained Workers", at a meeting of the Southern Textile Association, at Myrtle Beach, S. C.

To-day, when skilled help is scarce and the training problem becomes acute, many more manufacturers of textile machinery and textile mills are calling on I.C.S. for the consultation service of its Cooperative Training Division.

I.C.S. courses on textile work give the student a broad knowledge of one or more branches of the textile industries, as well as specific and detailed training on processes and machines. With your cooperation, he has access to the best textile laboratory in the world—your own mill. Skilled textile workers are developed from beginners.

Look into the comprehensive character of the I.C.S. training and its RESULTS. Here is a summary of the courses:

50 YEARS of Educational Service I.C.S.

SIXTEEN Practical Textile Courses

This is an unusual group of courses, each planned to afford special training in a branch of the Textile Industries. It includes:

COURSES IN COTTON MANUFACTURE

1. Cotton Manufacturing
2. Cotton Carding and Spinning
3. Cotton Warp Preparation and Plain Weaving
4. Fancy Cotton Weaving
5. Cotton Carding, Spinning and Plain Weaving
6. Yarn Reeling, Winding and Warping

COURSES IN WOOLEN MANUFACTURE

7. Woolen Manufacturing
8. Woolen Carding and Spinning
9. Woolen Warp Preparation and Weaving
10. Worsted Warp Preparation and Weaving
11. Wool Carding, Spinning and Weaving

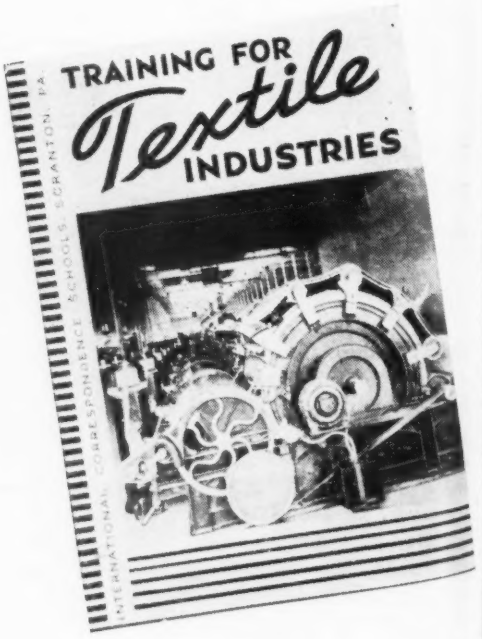
COURSES IN TEXTILE DESIGNING

12. Textile Designing
13. Theory of Textile Designing
14. Cotton Designing
15. Woolen and Worsted Designing

RAYON SLASHING AND SIZING

16. This course fills a decided gap, as books and information were lacking until it was prepared

Valuable Information for Textile Mill Managers in This Book—



Ask Us to Prove the RESULTS of These Courses

Write for full information on our methods of Cooperative Training. We will send you complete data, including the book—"TRAINING FOR THE TEXTILE INDUSTRIES."

Address Dept. 9339-B

International Correspondence Schools

SCRANTON, PA.

BOTTOM FOR YOUR NAVY BLUES!

Alizarine Red has been used for years by successful manufacturers to give depth to their indigo dyeings.

Today they are finding Calco Alizarine Red Paste the same reliable color for this purpose as always, unchanged by the greater demands created by the huge increase in Navy procurements.

A sound source for over twenty years, Calco production today is ample to meet your expanded needs.

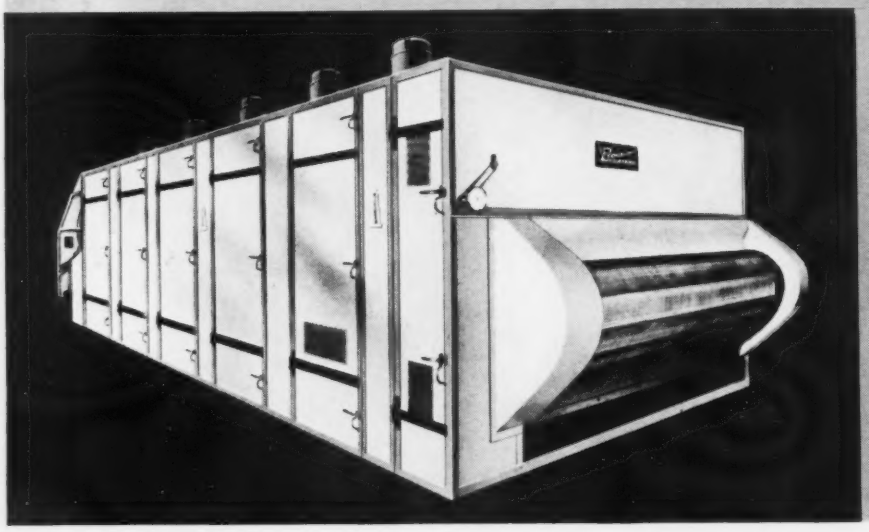
CALCO CHEMICAL DIVISION
AMERICAN CYANAMID COMPANY

BOUND BROOK, NEW JERSEY

BOSTON PHILADELPHIA PROVIDENCE
NEW YORK CHICAGO CHARLOTTE

Increase Capacity . . . Improve Drying with the

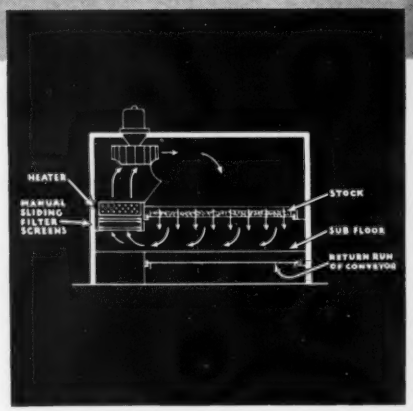
PROCTOR IMPACT DRYER



The Proctor Impact Dryer, shown at the left, is a Continuous Conveyor Dryer for speedily, correctly and economically drying dyed or bleached cotton stock, cotton linters, acetate rayon staple, dyed wool and other similar fibers.

To meet the demands of the textile industry for a compact dryer that would dry fibrous material uniformly, economically and in large quantities, Proctor & Schwartz developed this Impact Type Dryer. The principle of impact drying, in which heated air is impinged at high velocity on the material as it moves through the dryer, makes possible the removal of moisture with maximum uniformity and at high speed.

After dyeing, bleaching, or other preliminary treatment, mechanical dewatering of the fiber is accomplished by one of various methods. The fiber is then put into the automatic rotary type feed of the dryer. This new type automatic feed delivers a uniform flow of material to the dryer. The spiked drum of this new rotary feed is run at high surface speeds and, consequently, is able to feed enough material to meet the increased capacities which the dryer is capable of turning out. The feeder distributes an even layer of the fibers on the conveyor. This conveyor, made up of perforated metal plates hinged together, is carried through the dryer by heavy steel side bar chains on large steel rollers. Travelling guards prevent material from falling off sides of the conveyor or blowing into any part of the machine where it could cause trouble. Speed of the conveyor is easily regulated by a simple hand wheel adjustment. Because of the unique concentration of the drying medium, this dryer operates in a minimum of floor space for its large output. Unit construction permits building a dryer individually suited to the needs of any given plant or the addition of units when necessary.



One of the most important features in the Proctor Impact Dryer is the system of air-circulation. Heated air is impinged intermittently at a high velocity on the material as it moves through the dryer. This intermittent impingement of air agitates the stock, keeping it in motion during the drying process. This assures absolute uniform drying on top, bottom and all the way through.

PROCTOR IMPACT DRYERS

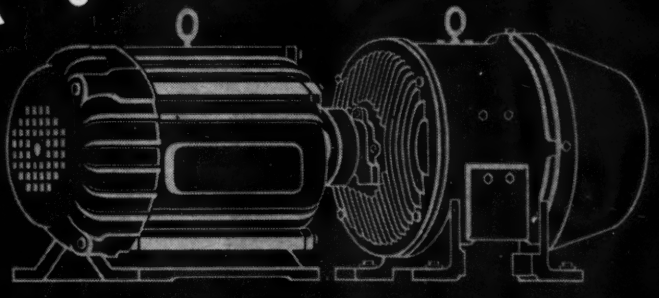
Manufactured by

PROCTOR & SCHWARTZ • Inc • Philadelphia

C-W

MARK OF DEPENDABILITY

SINCE 1888



C-W has been a *mark of dependability* on motors and generators for over 50 years.

Powering the war effort, on land and sea, may be found many Crocker Wheeler motors and generators which were made over a generation ago . . . yet are serving quietly, faithfully and economically, with a minimum of attention.

If you need rugged, dependable motors and generators, write or wire us, or consult our nearest office. We can make immediate shipment on many types.

CROCKER WHEELER ELECTRIC MANUFACTURING CO.
Ampere, N. J. • *Division of* JOSHUA HENDY IRON WORKS

For engineering and service information, call . . .

*Boston	(COM 6907)	*Detroit	(TR 2-5785)
*Buffalo	(CL 4985)	New York	(CO 7-6700)
*Chicago	(FRA 1616)	Philadelphia	(WAL 1444)
Cincinnati	(MA 1345)	Pittsburgh	(AT 9813)
*Cleveland	(MA 3255)	*San Francisco	(EX 5531)
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. . . or your local Crocker Wheeler dealer

* Local Stock

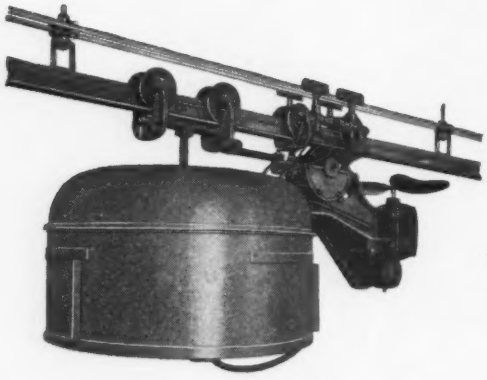
CROCKER WHEELER
Trade Mark Reg. U. S. Pat. Off.
Motors - Generators

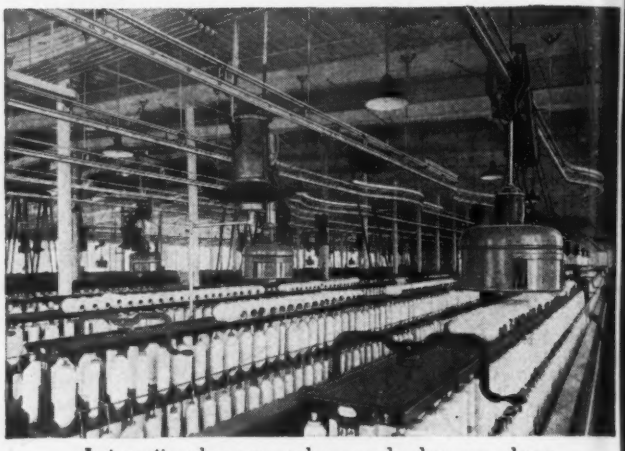
Be SURE . . . with
CROCKER-WHEELER

Other JOSHUA HENDY IRON WORKS factories at Sunnyvale, Pomona, Torrance, and Long Beach, California, and St. Louis, Mo.

CYCLONIC CLEANING...

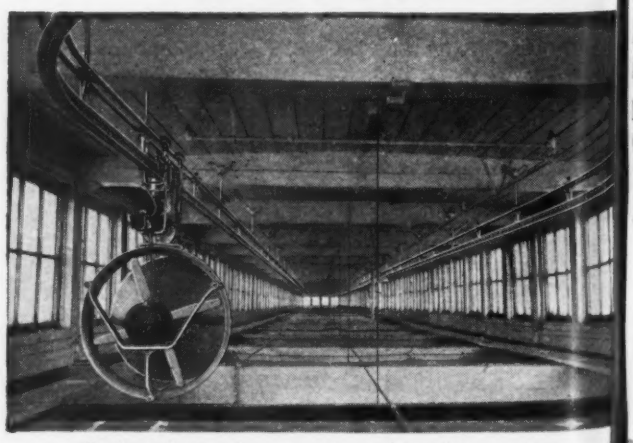
KEEPS MACHINES GOING AT *Top Speed*





Automatic cleaners reduce ends down on long draft spinning machines.

Swirling columns of air circulate around cones to prevent lint accumulation.



High velocity fan travels within the monitor keeping this section clean.

THE combination of American MonoRail MonoTractor and a scientifically designed blower unit solves the problem of lint accumulation on long draft spinning, high-speed twisting, winding and warping machinery. This automatic cleaning, a swirling column of air, keeps machines producing full time, enables operators to increase their output and reduces the number of gouts or bunches in the yarn.

Let an American MonoRail Engineer tell you the complete story of Controlled Cyclonic Cleaning. He can show you how cleaning is done better, quicker and more economically with American MonoRail Automatic Overhead Cleaners.

THE AMERICAN MONORAIL CO.

13108 Athens Avenue Cleveland 7, Ohio

★

It's a *long time* Between Replacements with

ALOYCO VALVES

STAINLESS STEEL

Today's shortage of manpower and materials makes it essential that you ask, "Will it last?" before you okay an order. It is characteristic of ALOYCO VALVES that they stand up under severe service. There has been no sacrifice in the quality of materials or workmanship for quantity production of Aloyco Valves. Experienced foundry practice, accurate machining and rigid inspection insure the maintenance of high standards of excellence.

ALOYCO VALVES permit widely varying piping layouts because they are made in a complete range of types and sizes as well as alloys.

We can supply ALOYCO VALVES and FITTINGS in materials most suitable for your application. Send us your inquiries.

Stainless Steel VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES • SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

Alloy Steel Products Company, Inc., 1300 West Elizabeth Avenue, Linden, N. J.

RAYON REPORTS

Presented Monthly by American Viscose Corporation, New York, N. Y. NOVEMBER, 194

W.P.B. ORDERS INCREASED PRODUCTION, PLANT EXPANSION AND FABRIC WEAVING

A recent War Production Board order, directed to the rayon industry, calls for a production increase of 41,000,000 pounds of high tenacity rayon to meet growing tire cord requirements. Of this amount, 28,000,000 pounds is to be turned out by the American Viscose Corporation.

A second directive, issued to this and three other rayon producing companies, orders the expansion of present plant facilities. The W.P.B. has already approved the American Viscose program calling for the expansion of its Front Royal plant. When this project, along with two others approved by the W.P.B. last month, is completed, the capacity of the Front Royal plant will be 82,000,000 pounds of high-tenacity yarn annually.

Another order, directed at American Viscose and one other plant, calls for the establishment of facilities for the weaving of tire fabric from the yarns produced.

NEW VAT DYEING METHOD DEVELOPED

Technicians of American Viscose Corporation and North Carolina Fabrics Corporation of Salisbury, N.C., working together, have developed a new method of vat dyeing that produces rayon fabrics which can be laundered at home or commercially without special handling. This new method also reduces dyeing costs. The process, known as "Vatru-Set," marks a definite and valuable advance in the field of dyeing.

This new process makes possible the vat dyeing of fabrics that never before could be dyed by this method, including such popular yet varied fabrics as spun rayon and wool gabardine, viscose rayon shantung, viscose rayon fuji cloth, and viscose and acetate spun rayon challis types.

The "Vatru-Set" process also gives dependable results when working with pastel colors, such as the popular "ice cream" shades, and shirting greens, blues and tans.

Full protection is given against color fading from both acid and alkaline perspiration, and the high requirements of the CROWN Tested Plan for washable rayon fabrics are easily met. These requirements call for launderability at 160° F. and 40 hours exposure in the Fadeometer.

In addition, the process provides shrinkage control in the finishing of the cloth.

"Vatru-Set" has been welcomed by the trade as an important step. American Viscose is proud to have helped with its development!

ANOTHER "E" FOR A.V.C.

The second rayon yarn plant to win an Army-Navy "E" award for excellence in war production is the Front Royal, Va. unit of American Viscose Corporation. The award was made Oct. 13.

The first "E" award for rayon production was made to the American Viscose plant at Marcus Hook, Pa., in July.

RAYON-CORDED SYNTHETIC TIRES PASS GRUELING BUS TEST

Good results were obtained during the recent testing of new synthetic rubber tires made of "S" type buna product. These tires, in which rayon was largely used, were tested on busses of the Public Service Coordinated Transport Company, of New Jersey, for over a full year. The average mileage ran as high as 37,000 miles per tire. With all types of roads and operating conditions taken into consideration, no failures from any cause other than normal wear were observed during the entire experiment.

NEW A.V.C. SAFETY RECORD

The Nitro, W.Va. plant of the American Viscose Corporation – by operating 270 days without a lost-time accident – has set a new company safety record. The previous record was made by the Roanoke, Va., A.V.C. plant which worked 161 days without a lost-time accident in 1941-42.

It is worthy of note here that the country's rayon producing plants have one of the best safety records of any United States industry. The number of days lost per 1,000 man-hours worked is second best among all industries.

'CHUTE SUITS WITH A NEW HUE

Fashion note from Burma:

Burmese natives are asking the U.S. Army Service Forces to drop supplies to American and Chinese forces operating along the frontier by *colored* parachutes.

Maj. Gen. W. D. Styers, Chief of Staff of ASF, recently stated that torn parachutes have been bartered with the natives who use them for making clothing.

Now they're getting more particular. They're tired of wearing white. What action has been taken has not been revealed.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN"* TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

Producer of
CROWN* *Rayon Yarns and Staple Fibers*

Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, Va.; Meadville, Pa.; Front Royal, Va.

CROWN TESTED

*Reg. U. S. Pat. Off. Copr. 1943, American Viscose Corp.

In the tight spots it's a STAR

Example: **CHICAGO PUMP CO. COMMINUTORS** are equipped with **STAR MOTORIZED REDUCERS**

These Star-powered comminutors are used widely here and abroad to screen and cut sewage matter automatically.

They operate 24 hours a day, 365 days a year.

They're ruggedly built to absorb mechanical or weather shocks and to keep going.

It's a simple matter for STAR to fit mechanical "tight spots". STAR does it every day with its unique welded construction that eliminates special patterns and castings completely. And it's the same with the other "tight spots," too—the unusual problems that puzzle manufacturers daily. In the **CHICAGO PUMP CO.**'s Comminutors for Sewage Plants, for example, STAR engineering provides exposed motors and reducers that withstand the extremes of arctic ice or desert sand—and do it without special or costly construction.

Besides its complete line of standard motors, STAR provides *tailored* motors which combine the flexibility of specialized application and engineering with the obvious advantage of standardized design. Sizes—½ to 200 h. p. Write us about your requirements.

STAR ELECTRIC MOTOR CO., BLOOMFIELD, N. J.

POWER PACKAGED AS YOU NEED IT

ARMY E NAVY

STAR MOTORS

Pioneering WITH Pigments
-one of a series of developments illustrating the advantages of Aridye* pigmented colors in new and significant applications

WILL MORE FABRICS BE *Flameproofed* AFTER THE WAR?

When flameproof shrimp nets were proposed for camouflage, a thorough program of development was started by the Laboratories of Aridye Corporation. The conventional type of flameproofing used on duck at the time was found to be unsatisfactory for shrimp netting because of its unique construction. It is not a fabric in the usual sense of the word, but rather a "mesh of wicks", loosely twisted yarns, thousands of air ducts or flues, each tending to feed combustion and make flameproofing more difficult.

The Aridye Laboratories developed a compound for use in an all-solvent method of application and having the advantages of completeness of penetration and ease of mixing. It also kept shrinkage of the nets to a minimum. Known as Aridye CFP colors, this compound contains light-fast pigments, especially selected so as not to aid combustion, binders that increase resistance to weathering and the necessary flameproofing ingredients. The application is a continuous one, consisting of impregnating the fabric by means of a padder and drying in one of the common types of loop dryers. High temperatures are not necessary since Aridye CFP colors require no "curing", in the usual sense, but only the removal of the solvent.

This new development means that you can now flameproof, mildewproof and dye nottingham, tricot, Raschel and lever's lace shrimp nets in one continuous padding and drying operation.

It is expected that this wartime pioneering accomplishment will lead to an increase in flameproofing after the war — proof again of the versatility of pigments — proof also that often pigments offer the best and simplest way of doing the job!

An illustrated, more detailed folder has been prepared on Aridye CFP colors and "after the war" flameproofing. It will be sent without obligation to any finishing plant requesting it. Send for your copy today!

* Reg. U. S. Pat. Off.

Aridye TEXTILE COLORING MATERIALS

ARIDYE CORPORATION • SUBSIDIARY OF INTERCHEMICAL CORPORATION • FAIR LAWN, N. J. • ROCK HILL, S. C. • PROVIDENCE, R. I.

The nearest thing to perpetual motion that industry has ever seen has been the machines of 1943. Working 24 hours a day, seven days a week, those machines have no time off except for *bad* behavior. That has been true of the belts that drive them, too.

It's time NOW *to check your leather belts*

Right now, before winter sets in and while leather belt replacements are available, a close check of your belting is imperative. Look over both the belts that have been running continuously, and those you may have in stock as spares. See if they need either—

DRESSING . . .

with a preservative that will lubricate their fibers and prolong their lives.

REPAIR . . .

Remember, an ounce of prevention may save a pound of cure and give you an extra ton of production.

RENEWAL . . .

Although leather is almost unlimited in the amount of punishment it can take, it won't last forever. A new belt may pay for itself in just a few months by delivering more power than did the old drive, thus increasing production.

Check the engineering, too. Perhaps experience dictates a change in design of drive, for greater efficiency. If so, the Houghton Man can help you.

And remember this, when you check your belting— VIM Tred Leather Belts in all medium weights are still available without high priority.

●

ONLY VIM TRED LEATHER . . . has the patented tread that means better pulley grip, less slip. VIM Tred with its high C/F will transmit more power at lower tension. VIM Tred Belts last longer, flex easily, pull more load. Write for the VIM Tred booklet, and the helpful maintenance guide—"How to Make Your Leather Belts Last Longer."

E. F. HOUGHTON & CO.
PHILADELPHIA
CHICAGO SAN FRANCISCO DETROIT

VIM TRED
LEATHER BELTING

Cold Upstairs?

—I'D BETTER PUT IN ANOTHER OUNCE!

...and tweezer in hand, she places another nugget in the furnace!

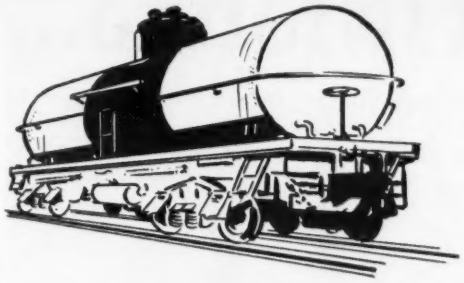
Maybe this is fanciful, but scientists say that a 4 oz. bit of uranium 235 will heat your house for 30 years! Now, that fabulous day isn't here yet by a long shot, but top-ranking scientists are right now working on this problem of capturing the power produced by atomic disintegration. Perhaps they will perform the miracle. After all, it wasn't so long ago that Fulton's steamboat was called a folly, that people laughed at the Wright Brothers for trying to fly. There were chuckles, too, when the idea of the "Continuous Process" was first broached. How could any one machine spin, wash, bleach, treat, dry and twist rayon yarn in one continuous thread, without a human hand touching it along the way? The experts of Industrial Rayon said it could be done—and they did it!

Today "Continuous Process" Yarn, magnificently uniform and knot-free, is fighting on far-flung battlefronts in submarines, destroyers, in bomber tires, in parachutes. And its peace-time applications, while already considerable, present a boundless future.

Industrial RAYON CORPORATION
MAKERS OF "CONTINUOUS PROCESS"* RAYON YARN AND "Spun-lo" KNIT UNDERWEAR CLOTH

*Reg. U. S. Pat. Off.

CLEVELAND, OHIO • *New York Office. 500 Fifth Avenue*

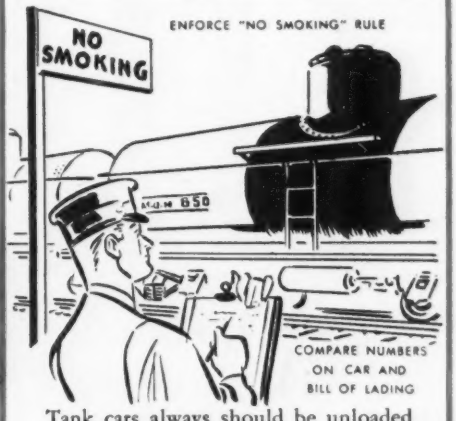


Unload Tank Cars Promptly, Safely

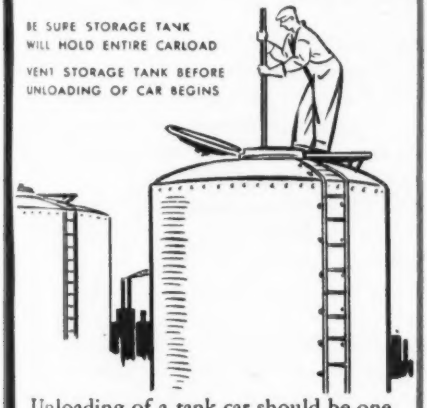
...and Keep Them Rolling for Victory!

After the car has been placed accurately by the railway crew, set brakes, block wheels, and place safety signs. If car contains inflammable material, car and system should be grounded properly to prevent sparks from static.

Only careful, competent employes should handle chemicals. They should be instructed in safe methods and the regulations of insurance companies and Interstate Commerce Commission as well as local and state laws.



Tank cars always should be unloaded in daylight or, if night hours are unavoidable, approved, explosion-proof electric lights should be used. Ample fire fighting equipment always should be handy and men instructed in its use.



Unloading of a tank car should be one continuous operation. However, if it becomes necessary to interrupt the operation or to move the car, all lines used for unloading must be disconnected and the car reclosed.

When a car has been emptied it should be disconnected from unloading lines immediately, reclosed and all four car placards removed, reversed or replaced with "Dangerous-Empty" cards.

There are not enough tank cars to meet today's shipping needs and no more can be built for the duration. It is, therefore, a patriotic service to unload cars promptly and start them on their return trip immediately.

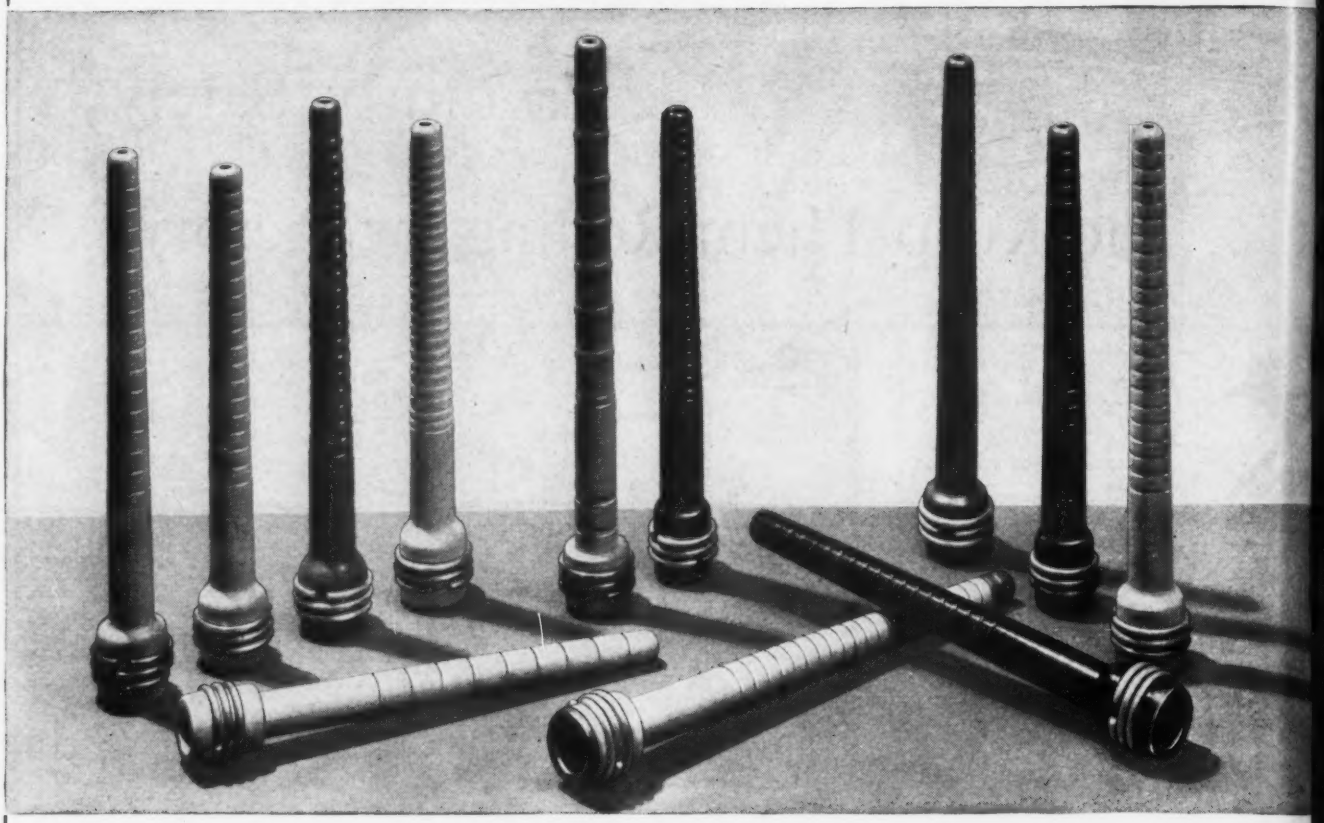
o avoid danger to workmen, ossible damage to property d the loss of essential materis, it is important that those charge of unloading tank s be thoroughly informed. e points given in this advertement are just a few highhts from recommendations of the Manufacturing Chemists Association. Space does not permit details. For complete information, we suggest you write either the Association at 608 Woodward Building, Washington, D. C., or, MONSANTO CHEMICAL COMPANY, St. Louis, Missouri.

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

"E" for Excellence... The Army-Navy "E" burgee with two stars, "representing recognition by the Army and the Navy of especially meritorious production of war materials" over a two-year period, flies over Monsanto's executive offices in St. Louis and over Monsanto plants at Anniston, Ala., and Monsanto, Tenn. The Army-Navy Production Award also has been won by five Monsanto plants at St. Louis, Mo., Monsanto, Ill., Karnack, Texas, and Springfield, Mass.

WHY DIFFERENT FINISHES...



Must Suit Various Fibers and Various Conditions of Moisture, Heat and Steam!

With U S "split" stock the turning follows the grain. Makes stronger, smoother, better balanced, truer running, longer lasting bobbins.

THE SEAL OF QUALITY AND SERVICE SINCE 1857 — US

U. S. Bobbins are made with the types of finish suited to specified working conditions for low, moderate and high relative humidity – for steam conditioning and Hygrolit processing.

For Wool and Worsted Yarns a finish of special oils combines with the natural oil in wool to oxidize and produce a hard, long-wearing surface.

For very fine cotton yarns and coarse deniers of rayon, our USSR finish produces a smoother surface. For fine deniers of rayon, particularly for soft yarns, such as low twist acetate, our USSRC finish provides highly polished surfaces which prevent filaments from catching during the winding and unwinding operations.

Where the Hygrolit Method is used to condition filling bobbins, our USSH Finish has proved its value. For intermediate conditioning, US150 finish is suitable up to temperature of 150 degrees. U S Transparent Enamel is impervious to moisture and steam, provided the temperature does not exceed 200 degrees.

All U S Bobbins requiring conditioning are made from straight grain "split" stock, whether for dry or moist operating conditions, with or without metal bushings, shields and tips.

Ask our representative to outline mill economies obtainable with improved U S Bobbins and other U S Textile Accessories, including Shuttles, Spools, Cones, Rolls, Cardroom Bobbins, Skewers, and Tubes. Let him help you to speed up production and improve the quality of yarn and cloth at less cost for operation and maintenance.

U S Why No. 4. Watch for More U S Whys in these pages

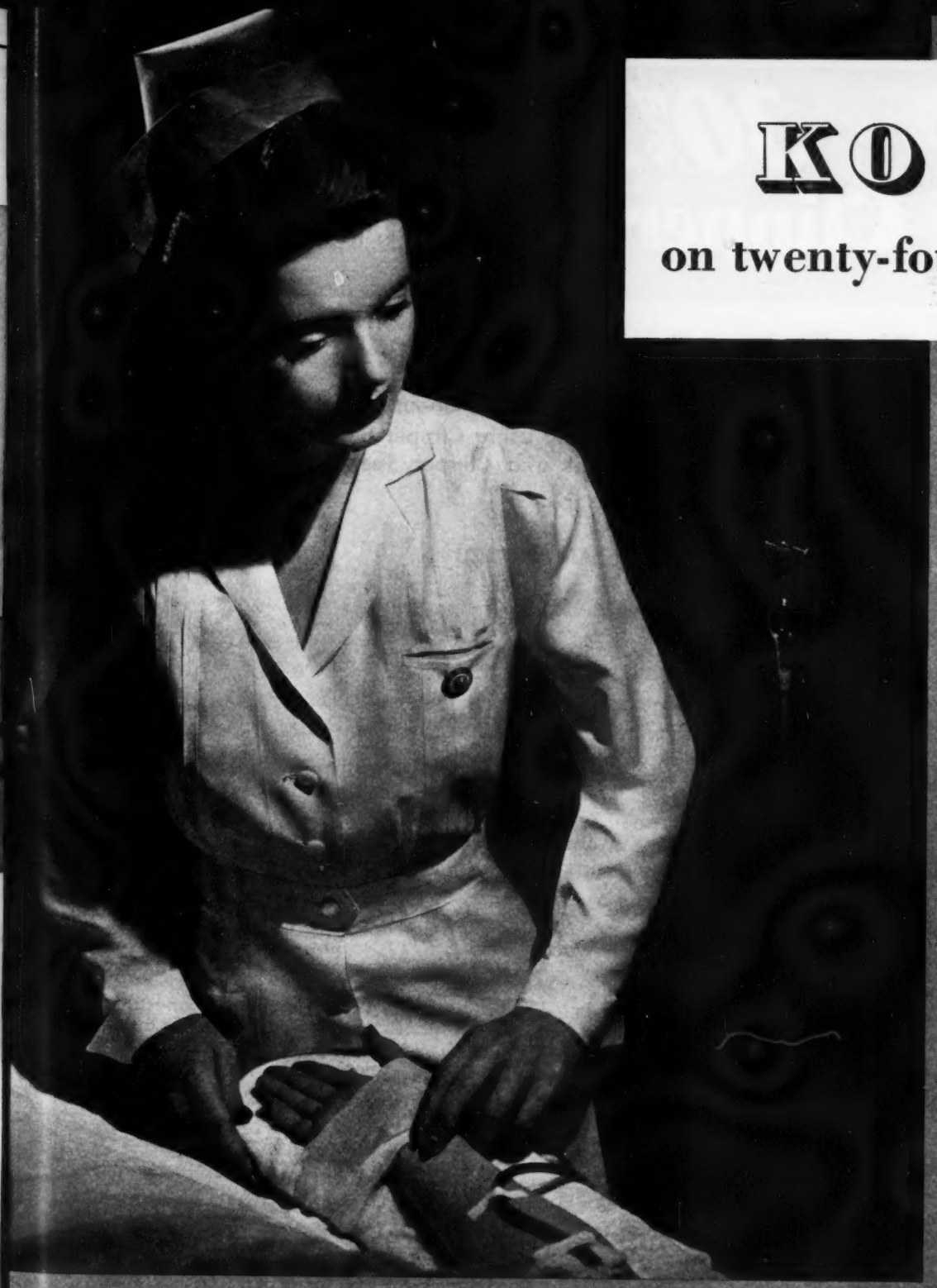
U S BOBBIN & SHUTTLE CO.

LAWRENCE, MASS.

PROVIDENCE, R. I. JOHNSON CITY, TENN. GREENVILLE, S. C. CHARLOTTE, N. C.

CHICAGO AGENT: Albert R. Breen, 20 E. Jackson Blvd. CANADIAN AGENT: W. J. Westaway, Montreal

ALABAMA AGENT: Young & Vann Supply Co., Birmingham



KODA*

on twenty-four hour duty

• More and more Koda Diagonal is being used for nurses' uniforms. More important than ever now are those qualities that have made it a classic . . . lightweight comfort, lasting freshness, resistance to soiling, ease of laundering. This sleek-surfaced twill is woven entirely of Koda, Eastman continuous-filament acetate rayon. It is one of many Koda fabrics in active service today . . . all of them proving that Koda builds for tireless endurance as well as for beauty.

EASTMAN ACETATE RAYON

A. M. TENNEY ASSOCIATES, INC., 10 EAST 40TH STREET, NEW YORK CITY, SALES REPRESENTATIVES FOR THE TENNESSEE EASTMAN CORPORATION, KINGSPORT, TENNESSEE, SUBSIDIARY OF THE EASTMAN KODAK CO.

30% Savings BY USING Clipper BELT LACING EQUIPMENT

The Timken Roller Bearing Co. of Canton, Ohio, has effected a saving of about 30% in consumption of belt hooks by using Clipper Belt Hooks, Clipper Lubrihide Pins and Clipper Speed Lacers.

You, too, can make worth-while savings by using ALL THREE Clipper products.

Remember, only Clipper Belt Hooks are packed with the long wearing **Lubrihide Pins.**

The **Clipper No. 9 Portable Lacer** develops pressures up to 16 tons. With such pressure, hook legs can be embedded flush with the surface of any kind of belt and points clinched.

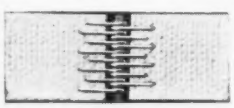
The scientific action of the jaws forms a perfect line of well rounded loops permitting the use of maximum diameter **Lubrihide Pin,** also providing equal distribution of pulling strain on every hook. A belt joint so made will outlast by two to three times one made with an old-style portable lacer.

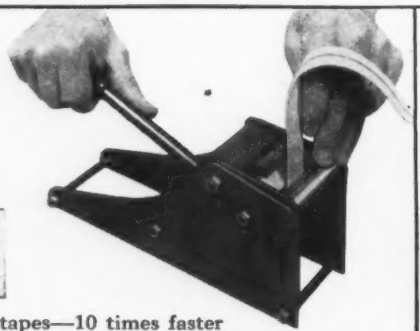
We suggest that you check YOUR belt lacing situation. Send for folder describing the powerful Clipper No. 9 Portable Lacer and other Clipper products. Phone your Mill Supply Jobber for a demonstration!

Clipper No. 9 Portable laces belts up to 6 inches wide in one quick, easy operation.

Scientific action of Jaws forms a perfect loop for connecting pins.

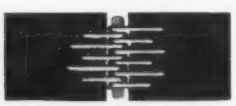
CLIPPER SPINDLE TAPE LACING EQUIPMENT

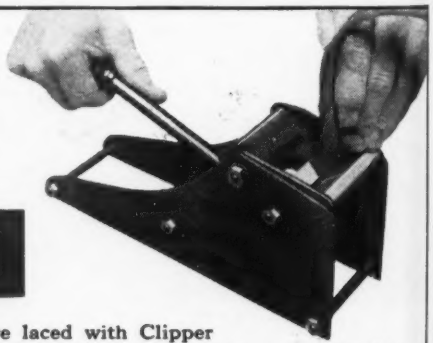




You can lace spindle tapes—10 times faster than stitching — with Clipper No. 25 Spindle Tape Hooks. The spinning frame is shut down only long enough to place the new tape on the pulleys and join the ends with the connecting pin — a short, easy operation. Tapes run true—last longer—run smoother—require less tension. VIBRATION is ELIMINATED.

CLIPPER CONDENSER TAPE LACING EQUIPMENT





Condenser tapes are laced with Clipper No. 25 Condenser Tape Hooks. The joint is as flexible as the tape itself. Clipper Laced Condenser Tapes can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving, and cut to length. WRITE FOR INFORMATION.

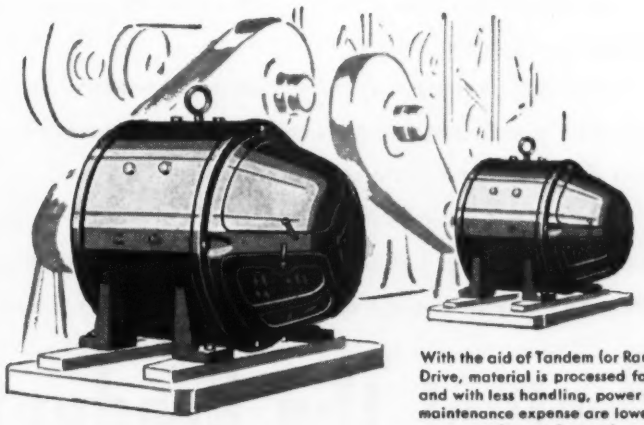
CLIPPER BELT LACER COMPANY GRAND RAPIDS, MICHIGAN, U. S. A.

TANDEM!

Wherever possibilities exist for arranging machines to operate in tandem, or series, so as to keep material moving and cut out stopping places, Reliance engineers can offer constructive help.

Pioneering work done by Reliance in adapting motor-drives to the continuous processing of materials in coil form has done much to reduce costs and improve quality and uniformity.

If you would like to talk over the applications and requirements of tandem operation and ways in which motors can be teamed up to produce most satisfactory results, send for a Reliance man.



With the aid of Tandem (or Range) Drive, material is processed faster and with less handling, power and maintenance expense are lowered and space is saved

RELIANCE A·C D·C MOTORS

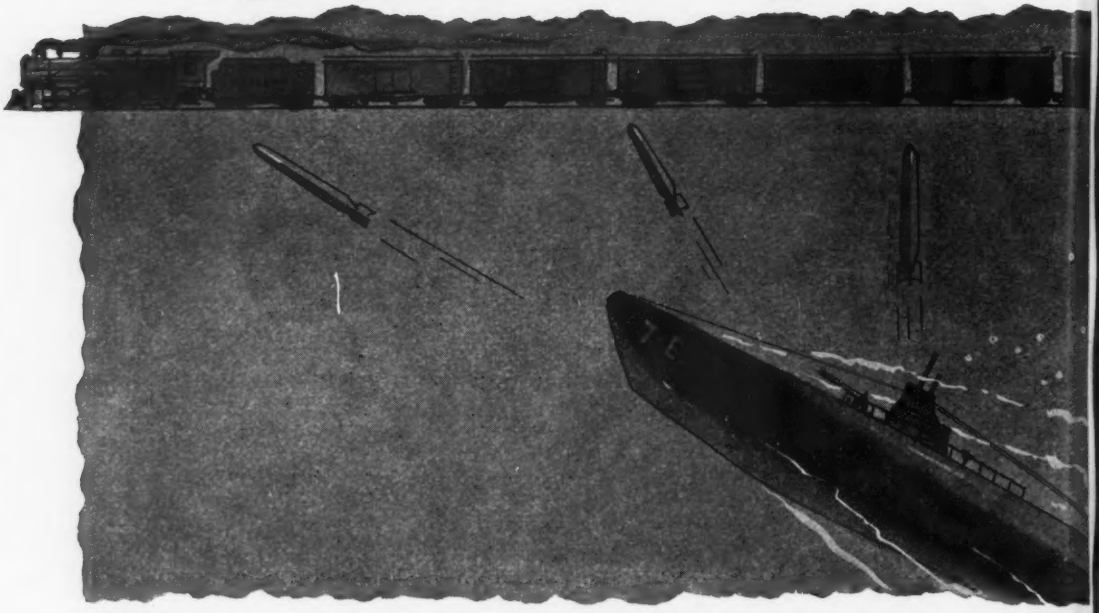
RELIANCE ELECTRIC & ENGINEERING CO.

1088 Ivanhoe Road • Cleveland, Ohio

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Detroit • Greenville (S. C.) • Houston • Los Angeles • Minneapolis • New York • Philadelphia • Pittsburgh • Portland (Ore.) • St. Louis • San Francisco (Calif.) • Syracuse (N. Y.) and other principal cities.

SUB-STANDARD PACKAGING

Torpedoes Shipments



FANTASTIC? Not at all. Poor packaging is helping to sink rail shipments at the rate of 275,000 loss claims a month in the U. S. Vital materials are being wasted . . . manpower is being wasted . . . shipping space is being wasted . . . Victory is being delayed . . . *unnecessarily.*

Inferior packaging may appear more economical. It isn't. A few additional pennies invested in sufficiently rugged and properly engineered corrugated boxes insure production factors worth hundreds of dollars.

If you're concerned with safer delivery of your products . . . and who isn't? . . . ask the H & D Package Laboratory to analyze your corrugated shipping boxes. They can show you practical ways to armor your products . . . and save you money.

Protect the Product

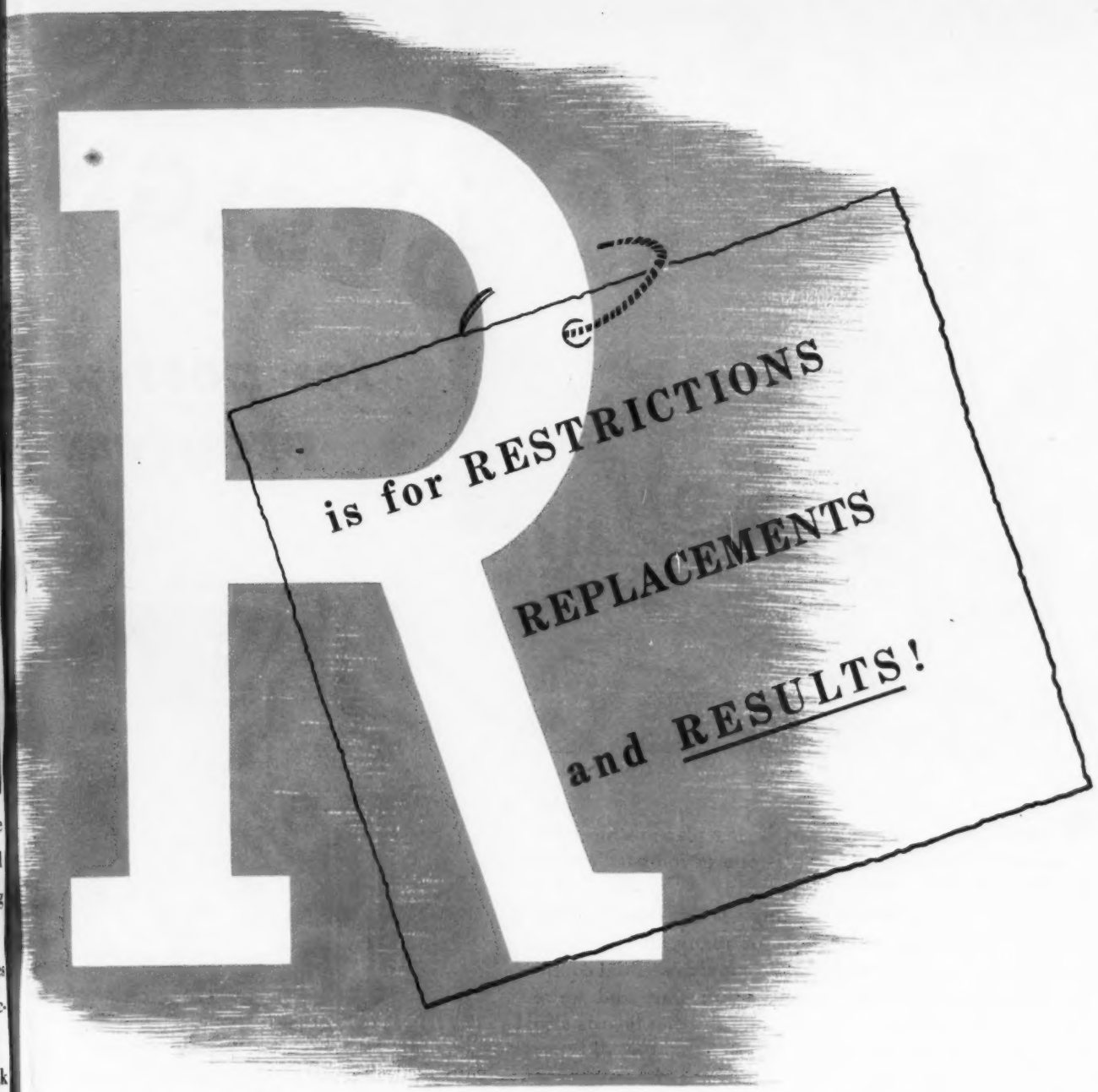
BETTER SEE H&D AUTHORITY ON PACKAGING

WRITE FOR THESE FREE PACKAGING "TEXT-BOOKLETS"

You'll find them invaluable as a handy "refresher-course" in economical, efficient packaging. Full of practical information on every phase of shipping and distribution, they'll save you time and trouble all year 'round. For free copies, write . . .

***HINDE & DAUCH,* Executive Offices:**
4330 Decatur Street, Sandusky, Ohio

FACTORIES in Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto



Getting results despite necessary restrictions of many chemicals to strictly high priority uses is of course a serious replacement problem for manufacturers of civilian goods.

The problem, an old one by now for many textile manufacturers and processors, is nevertheless rapidly being overcome by diligent efforts to relieve the situation. At Cyanamid, for example, new and larger capacities for production of essential chemicals are constantly going into action. At the same time, Cyanamid's intensified research is bringing about important developments in non-critical replacement materials. Thus relief may be said to be coming from two directions.

If the chemicals formerly considered necessary to your production are limited or no longer available, Cyanamid will be glad to work with you in overcoming this problem through the application of other materials that Cyanamid chemists and technicians have developed. There is no obligation.

AMERICAN CYANAMID
& CHEMICAL CORPORATION
(A Unit of American Cyanamid Company)
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

MANUFACTURERS OF
SULPHONATED OILS • PENETRANTS • FINISHES • SOFTENERS
SIZING COMPOUNDS • DECERESOL* WETTING AGENTS
AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY
*Reg. U. S. Pat. Off.

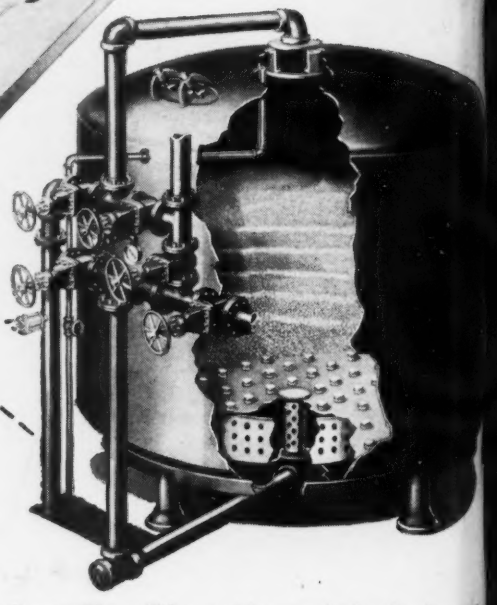
DESIGN

for post-war progress

ASIDE from winning the war, laying plans to meet the demands of a peacetime world is one of industry's most important activities today.

Here at Graver we are working closely with the management and engineering staffs of many of America's leading industries. Our big job is to supply essential equipment to those producing munitions of war, and we're working at it night and day. But our drawing boards also reveal plans for water conditioning equipment of all types to meet the requirements of peacetime. This equipment will not be built until Victory is won. Yet the planning will be completed. And when the last shot has been fired, there need be no delay in getting into production.

It's none too early to start planning, and our engineers will gladly cooperate with you. This service does not obligate you in any way and it may save you valuable time when the day arrives for rapid conversion to peacetime production.



Graver Water Filters, either vertical or horizontal, can be built in any capacity to meet your requirements. Prominent among the many features is the under-drain collecting and distributing system which insures uniform pressure over the entire area, resulting in equal collection from, and uniform distribution to, the entire filter bed.

GRAVER TANK & MFG. CO., INC.

4809-67 Tod Ave., East Chicago, Ind.

NEW YORK CATASAUQUA, PA. CHICAGO TULSA

GRAVER

WATER CONDITIONING EQUIPMENT

Graver designs, builds and installs all types of water conditioning equipment including:

Water Filters • Oil Removal Filters • Iron Removal Filters
Hot Process Water Softeners • Zeolite Water Softeners
Taste and Odor Removal Filters • Reactivators

43-46W

A REPUTATION IS A LIVING THING

Quality is a matter of refinements steadily bred into a product and sensitively cultivated.

General's policy is guided by faithful adherence to fundamentals through fluctuating conditions.

Ours is an attitude of perennial responsibility toward all those who deal with us.

This is how a business becomes planted deeper and deeper in its field of operations.

This is how our business grows and flourishes and its symbol becomes synonymous with Quality.

GENERAL DYESTUFF CORPORATION · NEW YORK

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

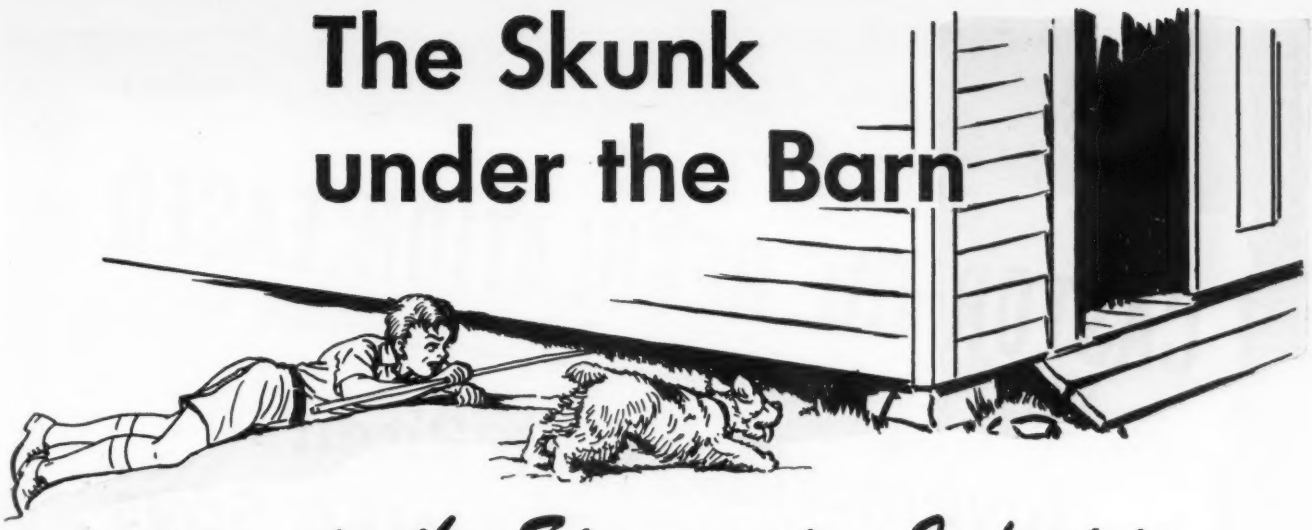
For Manufacturers and Merchants

Inquiries as to our services solicited

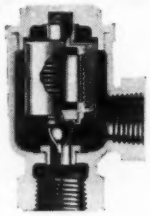
●

ESTABLISHED 1840

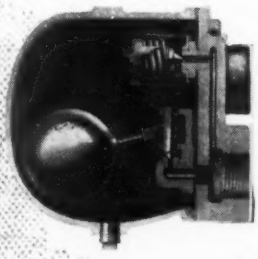
The Skunk under the Barn



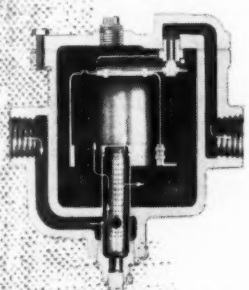
in the Steam-using Industries



Sarco No. 9 thermostatic steam trap



Sarco float-thermostatic steam trap



Sarco inverted bucket steam trap

Sarco No. 87 steam trap-control

You can't see condensate in a steam coil, or a supply line. Unfortunately, you can't smell it either, but the steam engineer in your plant can tell you about where it is and how it slows up your production.

Given the right tools, this "skunk under the barn" can be completely eliminated from your plant in a few hours. The tools consist of small, inexpensive steam traps that can be slipped into the lines like a coupling or an elbow, without necessitating any shut down.

The results are frequently phenomenal. Right now the increase in production and decrease in rejects are the big things. In some plants they make unnecessary new boilers, new steam lines, or new plant additions. Sarco makes four distinct types of steam traps to meet all the varying conditions under which condensate must be drained and air removed from steam coils, jackets, rotating drums or heating surface. Let the Sarco man advise you.

Production Improvement is Post-War Planning. Anything along these lines that you do to increase your production now will result in lower costs per unit and higher quality of production in your post-war output.

The Sarco Hook-Up Book for steam engineers gives specific recommendations on many of these ideas, together with computation tables and a description of Sarco products.

SARCO COMPANY, INC.
475 FIFTH AVENUE
NEW YORK 17, N. Y.

Represented in Principal Cities

SARCO Saves Steam

SARCO CANADA, LTD., 85 Richmond Street, West, TORONTO, ONTARIO

CASTOR OIL REGULATION EASED

Inventories Have Risen to "Satisfactory Level," WFA Says

SULPHONATED CASTOR OIL *Now Available*

Until December 31st, 1943, Castor Oil may be used freely in the production of civilian goods. This welcome news, of course, enables us to serve our customers with our usual promptness, eliminating the difficulties due to recent restrictions.

Orders will be filled on time . . . Should there be any change in regulations governing the use of castor oil, we shall inform the trade immediately.

Jacques Wolf scouring agents: BENSAPOL, LOUPOLE and WOLFCO SOLVENT are also readily available.

ANNOUNCING: New emulsifiers for wool oil, EMULSIFIER L-34 A, EMULSIFIER L-45 and EMULSIFIER L-55, replacing mineral sulphonates. All three have been tested and proved satisfactory in wool carding, spinning, etc.

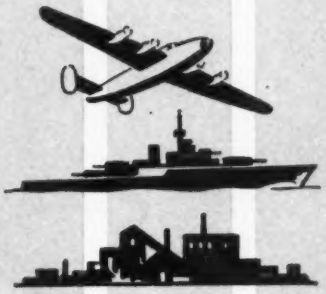
WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.

A war Hero to Consider in Your Plans for the Future

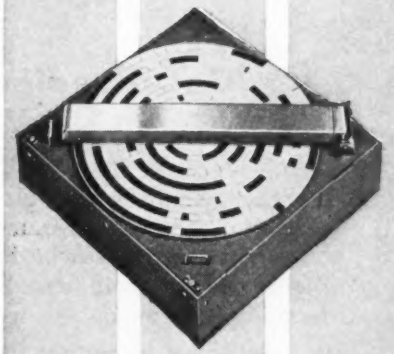


In a bomber over Berlin . . .

aboard a battleship in the far Pacific . . .

on the production lines of American factories . . .

AT EVERY WAR FRONT ELECTRONICS IS PLAYING A HEROIC ROLE



AUTOMATIC PROCESS CONTROL

For control of industrial processes from printed charts. Provides automatic control of chemical processes, also of production machinery.

Other products manufactured include: ELECTRONIC CONTROLS • VACUUM TUBES • HYDRAULIC SERVOS COMMERCIAL RADIO EQUIPMENT • ELECTROMECHANICAL DEVICES • ELECTROSTATIC HEATING UNITS UP TO 250 KW.

● There are hundreds of peacetime production jobs waiting for this war hero . . . jobs that Electronics can do better, faster, more economically.

In many ways which cannot now be told, General Electronics Industries has been helping to establish the great war record of Electronics through cooperative research with industrial organizations and Army and Navy research agencies. Our research engineers, skilled and experienced in advanced uses of Electronics, Hydraulics and Electromechanics, can give you valuable assistance in your production planning.

Remember: Today's plans mean tomorrow's profits. Write to Engineering Department, General Electronics Industries, 342 West Putnam Avenue, Greenwich, Conn.

ARMY-NAVY "E" WITH STAR awarded to Auto-Ordnance Corporation for continued excellence in production of "Tommy" Guns.

GENERAL Electronics INDUSTRIES

Division of Auto-Ordnance Corporation

GREENWICH • STAMFORD • BRIDGEPORT • NEW MILFORD • NEW YORK

LEARN HIDDEN FACTS

about Your Production!

Get revealing RECORDS of your process temperatures!

Somewhere in your plant, is an unknown temperature fluctuation preventing high production efficiency from becoming *even higher*? The true facts about temperature often will reveal how entire plant production can be improved.

Get these important facts, continuously and inexpensively, by installing automatic temperature recorders at every critical point. *Get them accurately and dependably* by specifying Foxboro Temperature Recorders!

Foxboro Temperature Recorders are precision-engineered to meet toughest industrial needs for accuracy, endurance and trouble-freedom. Their ultra-sensitive thermal system reacts instantly to slightest temperature changes. Their light, strong recording mechanism "writes it down", day-in day-out for years, without attention except routine chart replacements!

Write for Bulletin 198-2 containing the full story of these automatic watchmen for your temperature operations. The Foxboro Company, 84 Neponset Ave., Foxboro, Mass., U. S. A. Branches in principal cities of United States and Canada.

Check

THESE APPLICATIONS

Here are just a few of the temperature points where Foxboro Recorders can give you valuable "inside" facts:

AGEING MACHINES

BLEACH KIERS

DRYERS

DYE TUBS

RAYON BARATTES

SHREDDERS

SIZE BOXES

SLASHERS

STEAM BOXES

WASHERS

FOXBORO

REG. U. S. PAT. OFF.

TEMPERATURE RECORDERS

Stamp out mold growth in your product

Manufacturing problems caused by trouble-making bacteria and fungi can now be licked. By simple, scientific steps you can control mildew attack—both in manufacturing processes and in the finished product.

This important work is being accomplished every day through the use of Dowicides. These germicides and fungicides, developed by Dow, are used in several ways to eliminate microbial action in many processing operations. They serve nearly every major industry—paper, textile, leather, electrical, petroleum, lumber—and many others.

1. Untreated—
Product covered with mold.

2. Dowicide Treated—
Free from mold.

Perhaps you have encountered problems caused by bacteria and fungi. Dow maintains complete laboratory facilities for the solution of such problems. Why not write to us today?

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

PROTECTION FOR TEXTILES—Dowicides protect textiles against mildew and fungus growths. Incorporated in compositions for finishing, it provides an effective inhibiting action under widely varying atmospheric conditions—from arctic to tropical. This means longer life for all textiles. Write for full details.

DOWICIDE

GERMICIDES AND FUNGICIDES

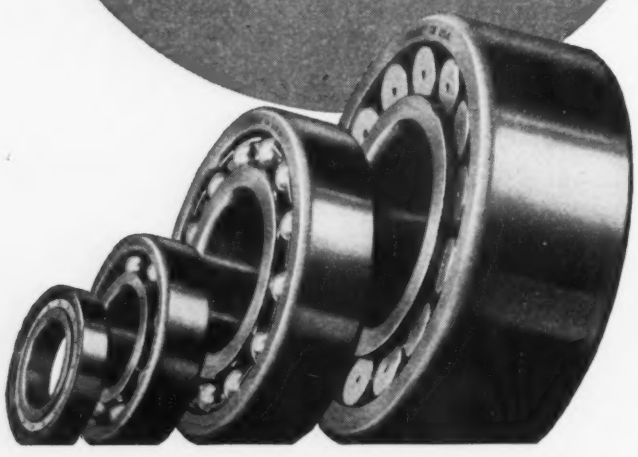
DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Bearings ON EXTRACTORS THAT WORK FOR UNCLE SAM

● *Built by*
TOLHURST CENTRIFUGAL DIVISION
American Machine and Metals, Inc.

SKF
Ball and Roller
BEARINGS

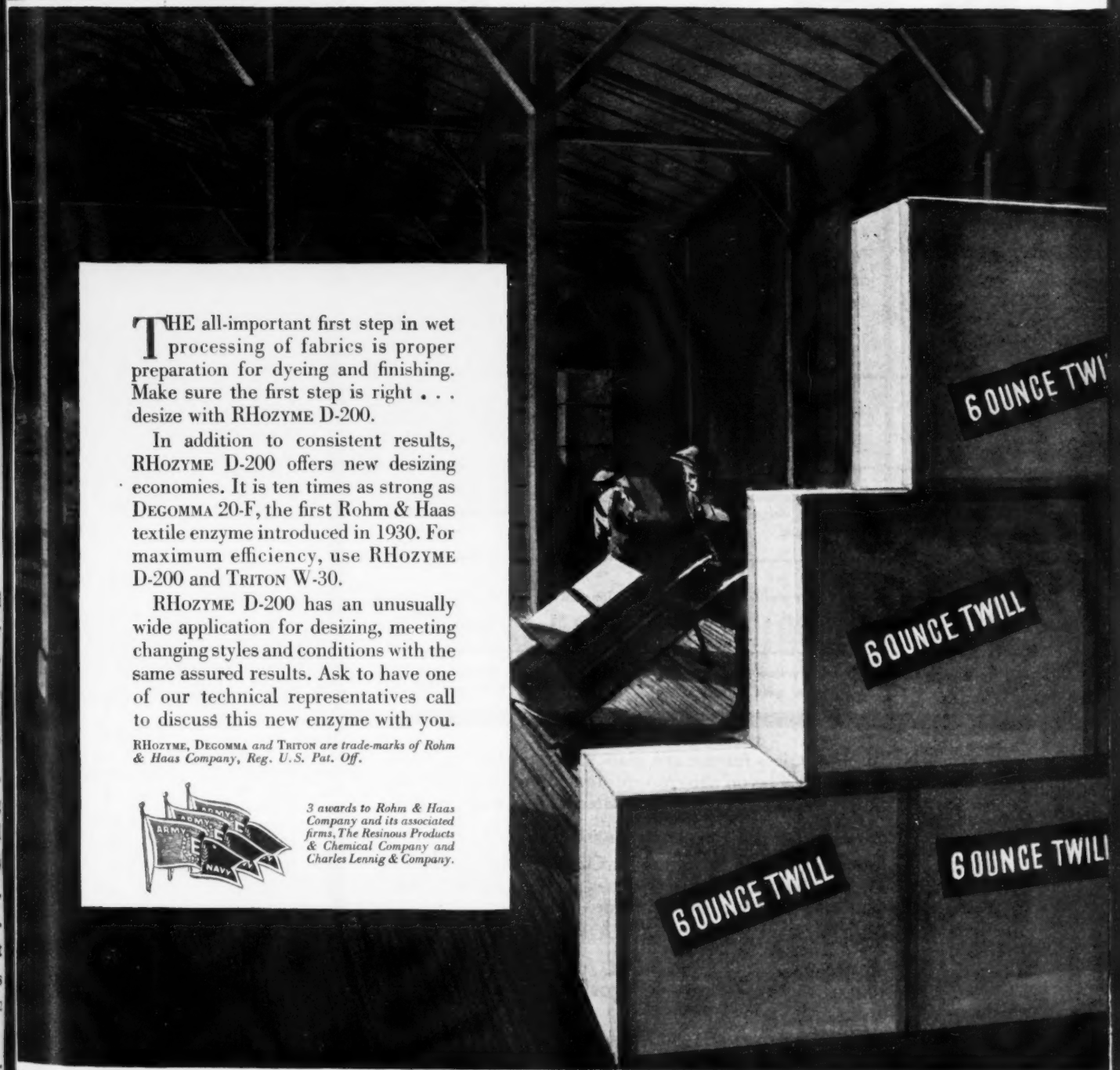


In every phase of the textile field . . . woolen, worsted, cotton, silk, rayon or knit goods . . . in all extracting operations including dyeing, bleaching, silk degumming, carbonizing and impregnating—you'll find this 96" Tolhurst Textile "Center Slung" Extractor doing war work on SKF Bearings. On the drive shaft that supports the rotating basket in this machine, SKF Spherical Roller Bearings absorb radial and thrust loads without binding . . . maintain full capacity . . . induce long life . . . never need adjustments. All of which insures the correct alignment that enables this extractor to meet War's exacting demands. 5411

SKF INDUSTRIES, INC., PHILA., PA.

In dyeing and finishing...it pays to take the all-important first step with

RHOZYME D-200



THE all-important first step in wet processing of fabrics is proper preparation for dyeing and finishing. Make sure the first step is right . . . desize with RHOZYME D-200.

In addition to consistent results, RHOZYME D-200 offers new desizing economies. It is ten times as strong as DEGOMMA 20-F, the first Rohm & Haas textile enzyme introduced in 1930. For maximum efficiency, use RHOZYME D-200 and TRITON W-30.

RHOZYME D-200 has an unusually wide application for desizing, meeting changing styles and conditions with the same assured results. Ask to have one of our technical representatives call to discuss this new enzyme with you.

RHOZYME, DEGOMMA *and* TRITON *are trade-marks of Rohm & Haas Company, Reg. U.S. Pat. Off.*

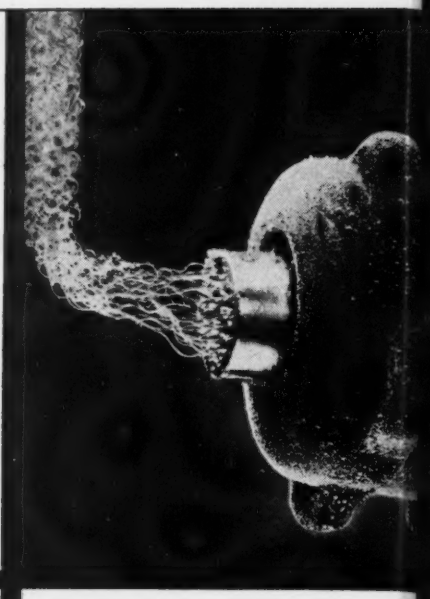
3 awards to Rohm & Haas Company and its associated firms, The Resinous Products & Chemical Company and Charles Lennig & Company.

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

Manufacturers of Chemicals including Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes . . . Chemicals for the Leather, Textile and other Industries

Check List of HOOKER CHEMICALS *for* RAYON



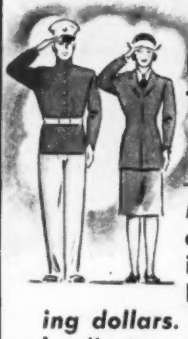
PRODUCT *Chemical Formula Molecular Weight*	DESCRIPTION	USES	SHIPPING CONTAINERS
Aluminum Chloride, Anhydrous $Al\ Cl_3$=133.3	Grayish White Solid	Catalyst for Friedel-Crafts syntheses to produce dyes	55 gal. drums containing 500 lbs. 5 gal. pails containing 50 lbs.
Bleaching Powder $CaO \cdot 2\ CaOCl_2 \cdot 3H_2O$=364.1	White Powder with chlorine odor	Bleaching Manufacturing of dye intermediates Water purification Germicide and general disinfectant	Drums containing 100, 300 and 800 lbs.
Caustic Soda NaOH=40.0	White deliquescent solid	Manufacture of viscose rayon, dyes Bleaching, dyeing and printing	Drums containing 100, 220, 400, 700 lbs. and tank cars
Chlorinated Paraffin (Formula depends on chlorine content)	Colorless to amber colored viscous liquid	Ingredient of compositions for flame, water and mildew proofing textiles	55 gal. drums containing 525 lbs. and tank cars
Lauryl Pyridinium Chloride $C_5H_5NC_{12}H_{25}Cl$ =283.4	White crystalline solid	To keep spinnerettes clean	Barrels containing 375 lbs.
Sodium Sulfide Na_2S=78.1	Light yellow colored solid	Desulfurizing rayon	Drums containing 90 and 350 lbs.

EQUIPPING THE WAC

—is part of rayon's job—In insignia and in hosiery, for example, rayon serves the uniformed nieces of Uncle Sam.

BRINGING HIM TO SAFETY

—is part of rayon's job. Rayon is widely used in 'chutes for paratroopers, and truck tires for land forces.



BACKING THEM WITH BONDS

—is part of *everybody's* job. Your dollars invested in U. S. War Bonds are *fighting dollars*. Join the "regulars" every pay day.

This check list summarizes for you at a glance several of chemistry's contributions to today's rayon progress. More detailed information on any of the HOOKER chemicals tabulated above will be sent on request.

Other chemicals for other textile uses

Include the following HOOKER products: Chlor Anisidine, Chlorine, Ferric Chloride Solution, Muriatic Acid, Sodium Sulfhydrate, Sulfur Monochloride and Sulfuryl Chloride.

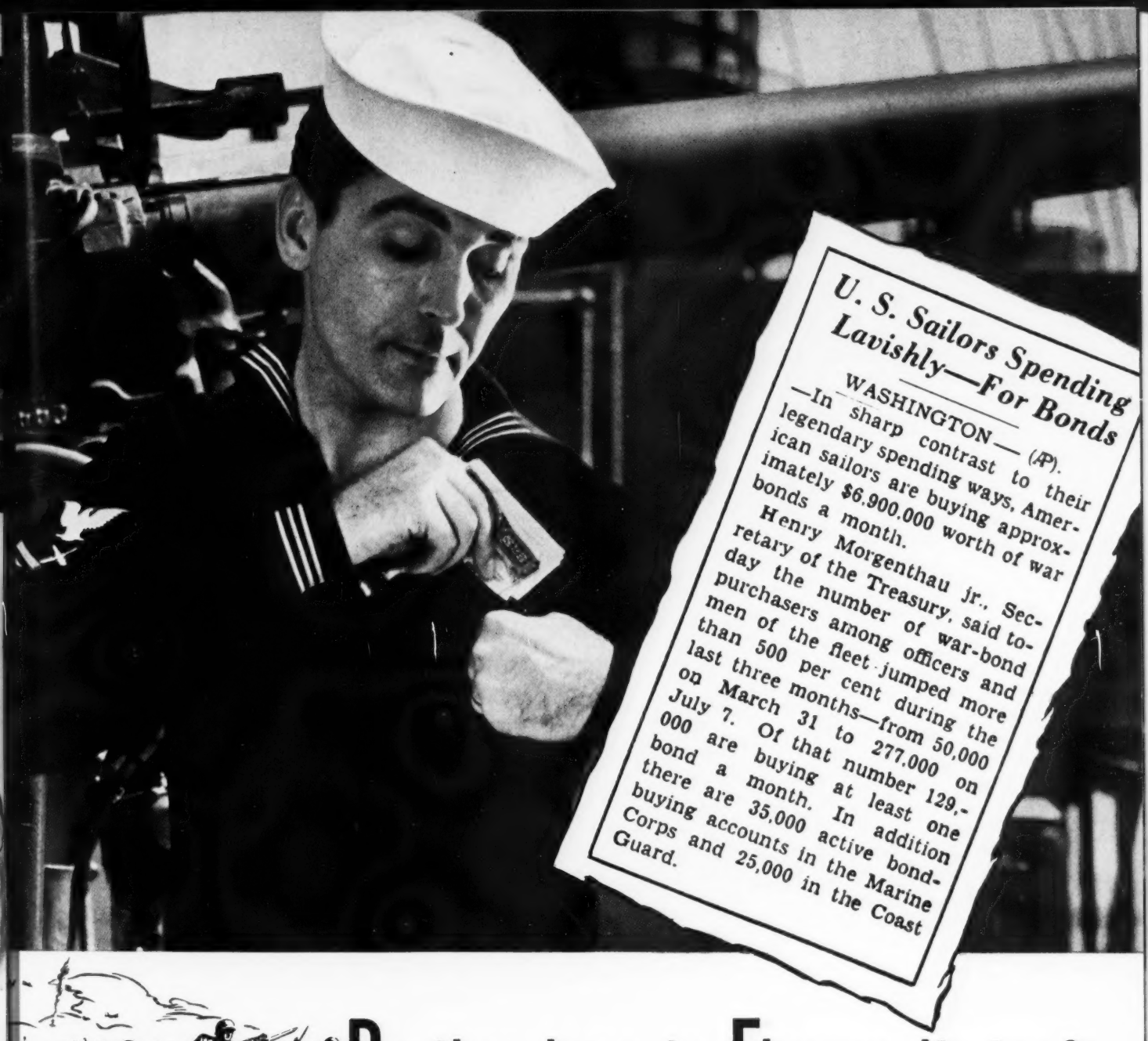
Write for list "T9" of principal HOOKER chemicals.

HOOKER ELECTROCHEMICAL COMPANY

NIAGARA FALLS, NEW YORK

New York, N. Y. Tacoma, Wash. Wilmington, Calif.

HOOKER CHEMICALS

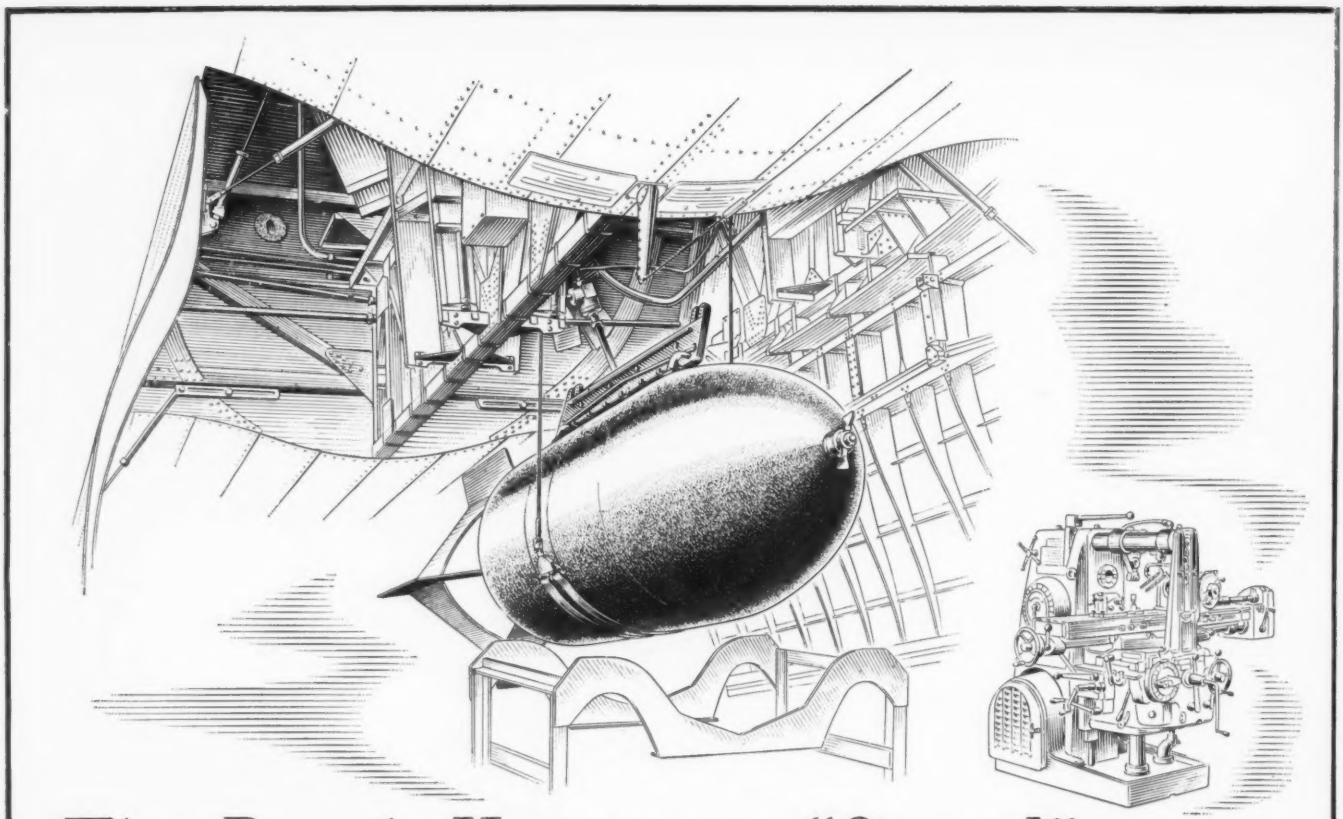

U. S. Sailors Spending Lavishly—For Bonds
WASHINGTON — (AP). —In sharp contrast to their legendary spending ways, American sailors are buying approximately $6,900,000 worth of war bonds a month.
Henry Morgenthau jr., Secretary of the Treasury, said today the number of war-bond purchasers among officers and men of the fleet jumped more than 500 per cent during the last three months—from 50,000 on March 31 to 277,000 on July 7. Of that number 129,000 are buying at least one bond a month. In addition there are 35,000 active bond-buying accounts in the Marine Corps and 25,000 in the Coast Guard.

Do they have to Finance it, too?

Our soldiers, sailors and marines are fighting this war—and millions of them are helping to pay for it, too. ☆ How can a civilian who is not buying all he or she can of War Bonds look these men in the face? ☆ Buying War Bonds is not simply a gesture of patriotism. It is a duty...doubly binding as a duty because it is a voluntary act—an act as free as the land we live in. ☆ Let's all remember this on pay day...and put our money on the line...on the *Front Line*...with U. S. War Bonds.

THE TORRINGTON COMPANY, Torrington, Conn.

Makers of Torrington Spring Beard and Latch Needles



The Bomb Hoist was *"Struck"* by Something in the Milling Machine

IT MAY BE NEWS to some that a part so long at home in milling machines proved equally effective in bomb ammunition hoists. For the milling machine is a precision tool in which ease and speed of operation are vital. Noted for its anti-friction operation, the Torrington Needle Bearing is used in some of the most famous of these tools to meet just such milling machine "musts" on various hand and power-operated trip levers.

With the bomb ammunition hoist ease of operation is, of course, important, too. But of even greater concern in these days of mightier and mightier "blockbusters" is the danger of overloading. Where bomb hoists do their work, "spares" and often adequate repair facilities may be painfully conspicuous by their absence. That's why the Needle Bearing scored a "direct hit" with the designers of bomb hoists—its high unit capacity helps prevent overloading or breakdowns, and low coefficient gives it a "made-to-order" operating ease.

The pay-off, however, is that this unique anti-friction bearing had several *other* features which helped build a better bomb hoist—its compact size saves weight, increasing maneuverability... its effective system of lubrication means less servicing attention required... its long service life speaks for itself... while the ready availability of the Needle Bearing eliminated one of the most frequent obstacles in war production—delay in delivery.

ISN'T THIS SOMETHING TO THINK ABOUT in planning your postwar designs? Not alone because of the Needle Bearing's adaptability to a wide variety of products for entirely different reasons, but also because its unique combination of advantages represent the very features customers will be looking for Tomorrow in the things for peacetime living—light weight, compactness, ease of operation, freedom from maintenance and long life. Torrington engineers are ready to point out how you can give your product these same advantages with the Needle Bearing. For preliminary information on sizes, types and ratings, together with a list of typical applications, send today for Catalog No. 116.

NEEDLE BEARINGS— ALL TYPES—ALL SIZES

NEEDLE BEARINGS TYPE DC are complete, self-contained units consisting of a full complement of rollers and a drawn, hardened outer race. They offer the advantages of small size, low cost, high capacity—and easy installation.

NEEDLE BEARINGS TYPE NCS consist of a full complement of rollers and a relatively heavy hardened outer race. They are furnished with or without inner races. Needle Bearings Type NCS are adaptable to heavier loads than Needle Bearings Type DC.

NEEDLE ROLLERS TYPE LN are produced in a range of types and sizes for assembly on the job into low-cost, high-capacity, anti-friction bearing units. Our engineering department will be glad to advise on the correct size and type for any application.

THE TORRINGTON COMPANY

Established 1866 • Torrington, Conn. • South Bend 21, Ind.

Makers of Needle Bearings and Needle Bearing Rollers

New York · Boston · Philadelphia
Detroit · Cleveland · Seattle
San Francisco · Chicago · Los Angeles
Toronto · London, England

LET'S GO! WAR · KEEP 'EM FLYING

TORRINGTON NEEDLE BEARINGS

"Anybody remember what Tomkins owes us?"

We'll wager they don't even come close, for memories are notoriously fickle.

What they need are records—accurate records that get things down in black and white . . . correctly—eliminate guesswork—cut waste and red tape . . . speed and co-ordinate the flow of vital information.

That's why so many businesses use Uarco's scientifically designed records for purchasing, manufacturing, shipping and office routines. They save time, money and manpower in today's swift race for Victory . . . are tailored to individual needs.

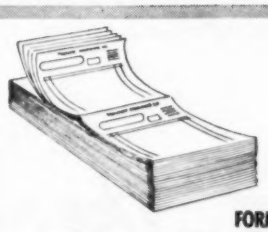
Perhaps Uarco Records can better co-ordinate and integrate routine in your business, too. If we don't have the right kind of records for you, we'll design them. Why not let a Uarco representative analyze your problem?

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*

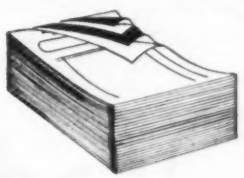
UARCO **BETTER BUSINESS RECORDS**

AUTOGRAPHIC REGISTERS

FORMS FOR HANDWRITTEN RECORDS



FORMS FOR TYPEWRITTEN RECORDS



FORMS FOR BUSINESS MACHINE RECORDS

for the Safe Processing of All Fibers and Fabrics

Today, when safe, efficient processing is so vitally important, the soap you use in your wet finishing operations must really "deliver the goods." And in countless textile mills throughout the country Olate is doing just that.

In the interest of economical, efficient and safe production it will pay you to check the qualifications of Olate against those provided by the soaps or other processing agents you may now be using.

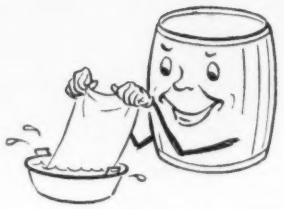
EXCEPTIONALLY LOW TITER

Rapid solubility is one of many Olate advantages. Saves time, labor, steam.

RAPID, THOROUGH RINSIBILITY

An important safety factor in processing any fiber or fabric. Olate rinses freely even at lower-than-average temperatures.

THOROUGH YET MILD CLEANSING ACTION



Olate's cleansing action is as gentle as it is thorough. There is probably no safer soap available than pure, neutral Olate—nor one with better detergent action.

STABILITY AGAINST RANCIDITY

Careful selection and refinement of the oils used in Olate—and exacting processing safeguards—make it unusually resistant to oxidation and rancidity. Coupled with Olate's free rinsing properties, this Olate advantage is an important safeguard against fabric discoloration or odor troubles.

Let this safe, efficient textile soap help smooth out *your* wartime processing difficulties.

Procter & Gamble

Olate *the universal textile soap*

Universal Atlas Cement Company, Leeds, Ala.

CONCRETE

BRICK, MASONRY, OR STEEL FRAME CONSTRUCTION?

That is a matter for YOU to decide after consultation with your engineer or architect. But when your decision has been reached, you will need the services of a contractor competent in all types of industrial construction.

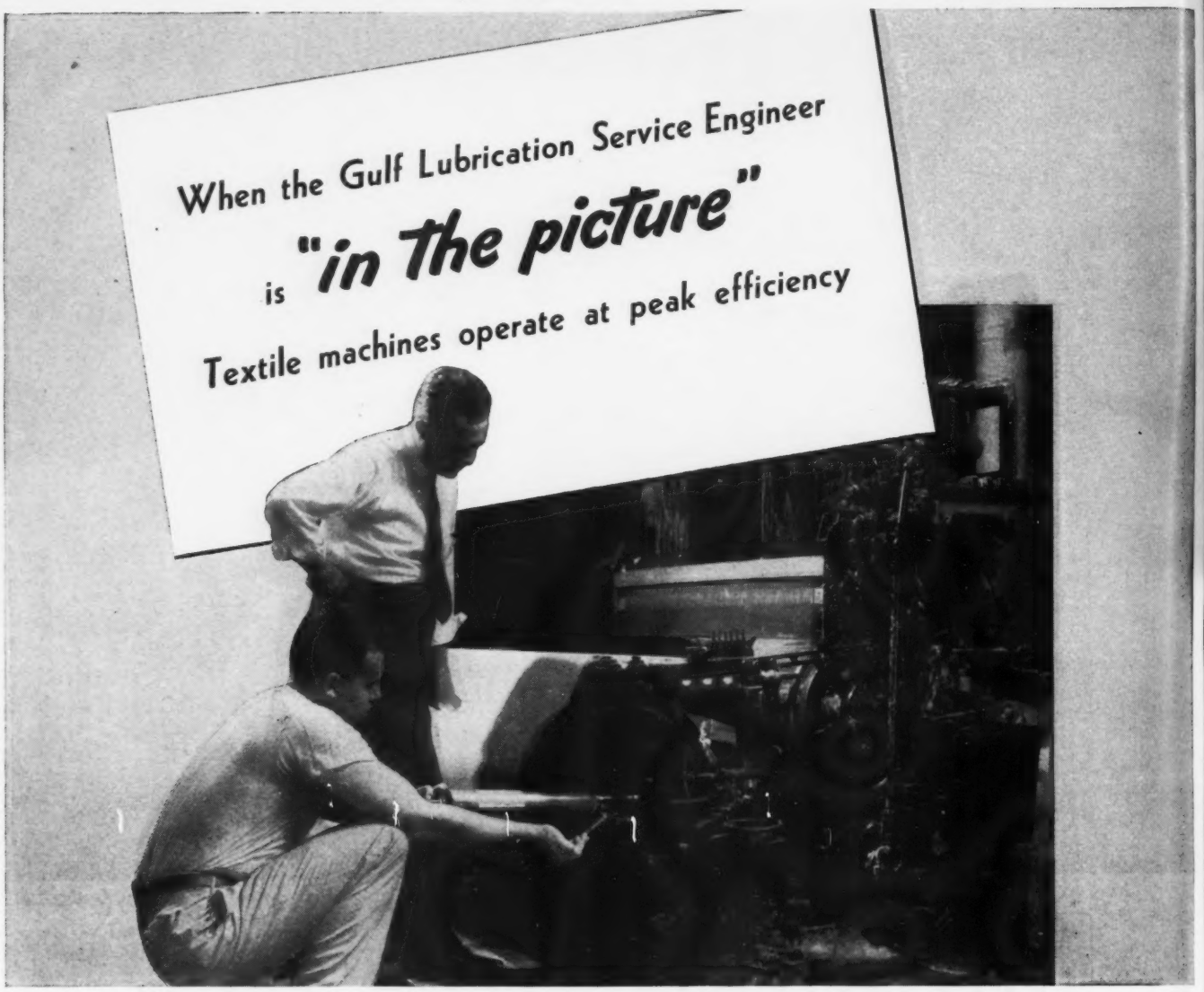
Our organization has been departmentalized to meet this need.

A trained and experienced personnel, with adequate modern mechanized equipment, is your assurance of prompt, efficient and satisfactory service.

EXISTING PLANTS MODERNIZED MAINTENANCE SERVICE FURNISHED
ANYWHERE IN THE SOUTH

DANIEL CONSTRUCTION COMPANY, INC.

GREENVILLE, S. C. BIRMINGHAM, ALA.



Actual photo showing Gulf Lubrication Service Engineer, A. M. Wright, checking loom lubrication in a large southern textile mill. With the help of this Gulf Service Engineer, this mill keeps equipment up to maximum production and enjoys low maintenance costs.

The helpful cooperation of Gulf Service Engineers contributes to greater production and lower maintenance costs

There is a big plus value in using Gulf quality lubricants, which is being converted into many operating benefits in hundreds of leading mills. This extra value is the helpful cooperation extended by Gulf Lubrication Service Engineers.

With years of training and practical experience in many mills as a background, Gulf Lubrication Service Engineers *know how* to minimize wear and make machines give top performance by the scientific application of the proper lubricants.

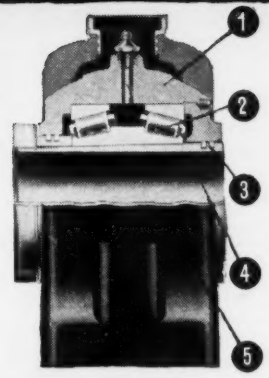
Let a Gulf Service Engineer assist your men in placing the lubrication in your machines on the most efficient basis possible. It is more than likely that improvements can be made.

GULF OIL CORPORATION · GULF REFINING COMPANY
Gulf Building, Pittsburgh, Pa.

For Victory—
buy U. S. War
Bonds and Stamps

GULF INDUSTRIAL LUBRICATION

"FOUR FREEDOMS" THAT RELEASE *more power* for VICTORY

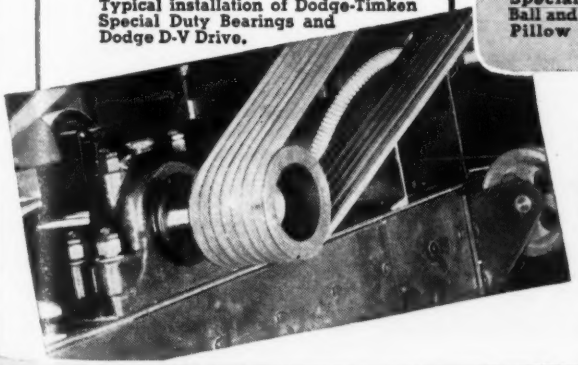


WHY DODGE-TIMKEN SPECIAL DUTY ADAPTER TYPE BEARINGS GET MORE POWER TO WORK:

1. Full ball and socket self alignment protects against wear and power-loss . . . also simplifies installation.
2. Dodge-Timken roller bearings provide full bearing capacity for radial and thrust loads . . . putting all the power in the job.
3. All metal automotive type piston ring seals keep grease in and dirt out, closing the bearing tightly against entry of foreign substance, but leaving it wide open to passage of power.
4. Long, split adapter sleeve distributes load over entire length of bearing . . . reduces pressure per square inch on shaft and eliminates peening action which causes rapid wear.
5. Rugged, well proportioned outer housing gives over-all protection to bearing.

These bearings are delivered completely assembled, ready for instant installation, capable of 30,000 hours' service under conditions for which they are designed; original lubrication lasts throughout 50 million revolutions. Available in a wide selection of types and sizes, suitable for all service conditions.

Typical installation of Dodge-Timken Special Duty Bearings and Dodge D-V Drive.



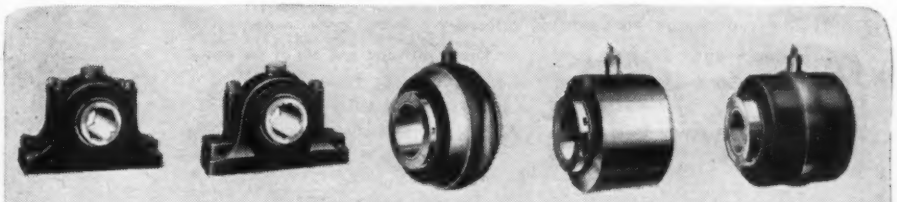
Freedom from *friction* . . . freedom from power-loss . . . freedom from *wear* . . . freedom from *maintenance!* . . . Dodge-Timken Bearings combine ruggedness, precision construction and smooth operating efficiency to bring those "four freedoms" to industry!

These rugged bearings keep power transmission channels free for full, unhampered flow of power to production machines. They prevent "clogging" of power-flow . . . they protect against slow-ups or "power blackouts" that are the ever-menacing maintenance threat of obsolete, worn out, friction-ridden bearings.

Now, and in post-war production, your plant can get more power *to work* with Dodge-Timken Bearings and other Dodge Power Transmission equipment.

Contact your local Dodge Distributor or write to

DODGE MANUFACTURING CORPORATION
Mishawaka, Indiana, U. S. A.



Dodge-Timken Special Duty Ball and Socket Pillow Block

Dodge-Timken Special Duty "S-1" Pillow Block

Dodge-Timken Special Duty "D" Unit Mount

Dodge-Timken Special Duty "B-1" Unit Mount

Dodge-Timken Special Duty "S-1" Unit Mount

DODGE
MISHAWAKA

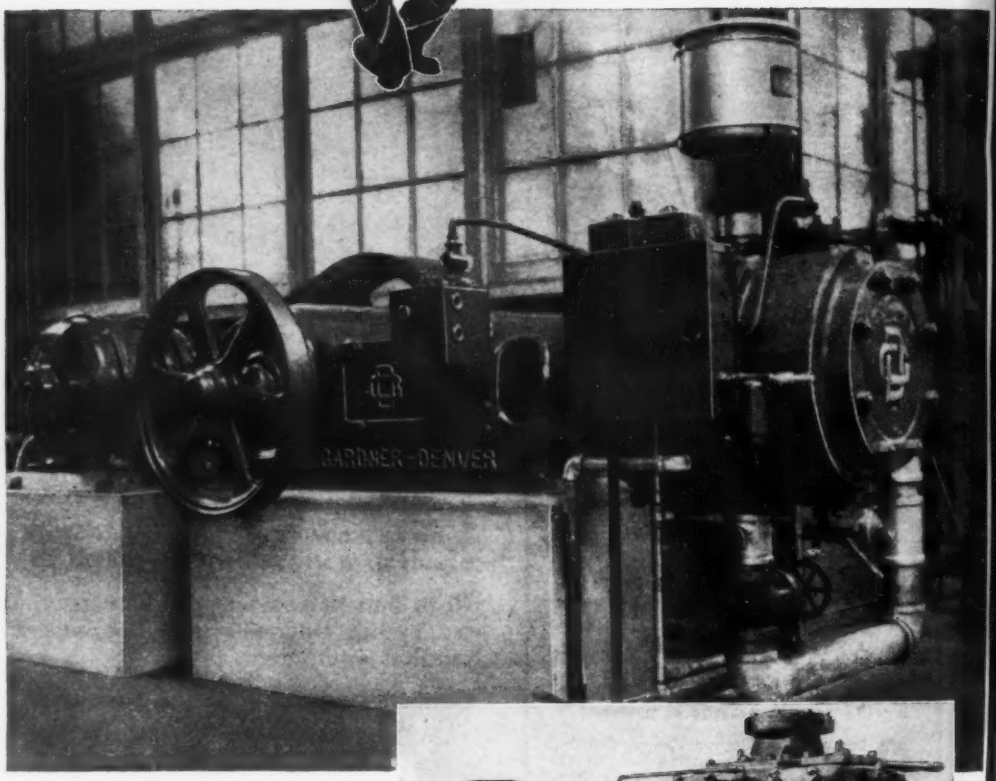
THROW ALL YOUR SCRAP INTO THE FIGHT! BUY MORE WAR BONDS!

THE RIGHT DRIVE FOR EVERY JOB

PUT *ALL* YOUR POWER IN THE JOB

more help in shouldering the load...

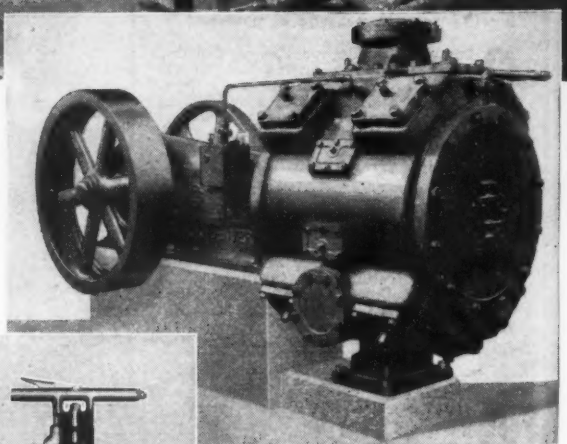
Yes, textile mills are under terrific pressure these war-busy days. And keeping step with the demands of all-out production, Gardner-Denver RX Compressors are furnishing a steady, reliable source of compressed air—shift after shift. More than ever before, operators are appreciating the sturdy dependability built into every Gardner-Denver compressor.

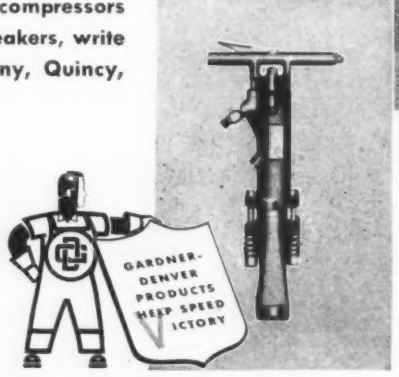


NOTE THESE ADVANTAGES AND YOU'LL SEE WHY:

1. Electro-pneumatic control that automatically fits air output to air needs.
2. "Air-cushioned" Duo-Plate valves that are quiet, durable and efficient, actually becoming tighter with use.
3. Cooler discharge temperatures assured by extra large water jacket areas. Rugged dirt-free construction keeps dirt and grit out of the power end—shuts in oil.
4. Capacities range from 89 to 1292 cubic feet displacement per minute.

For further information on Gardner-Denver "RX" compressors and "RXV" Vacuum Pumps and B-72H Paving Breakers, write for descriptive bulletins. Gardner-Denver Company, Quincy, Illinois. Offices in all principal cities.

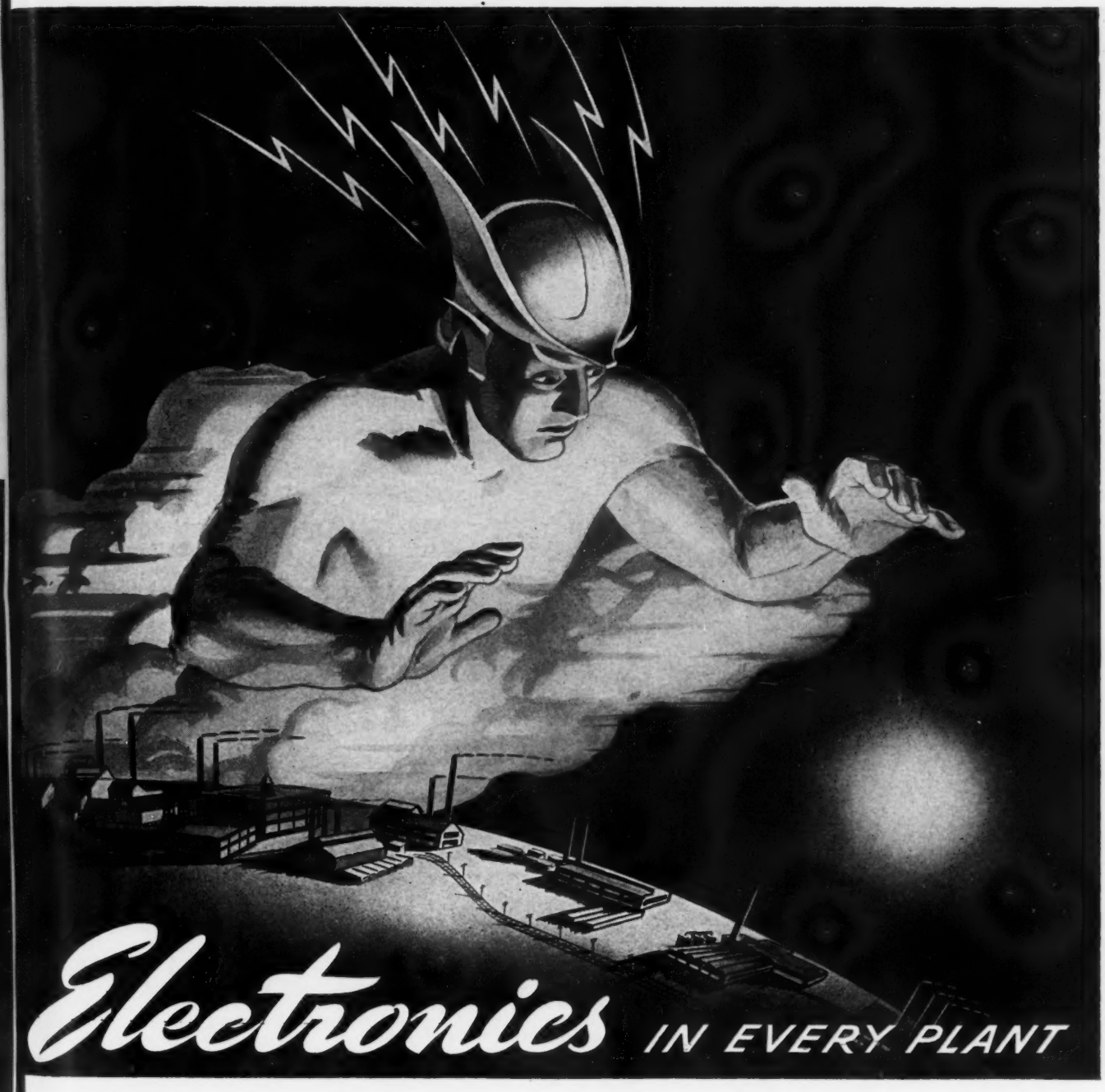




Gardner-Denver "RXV" Vacuum Pumps are especially built for heavy duty, continuous service in lint cleaning, cotton carding and other uses. Designed to produce high vacua above 28 inches Hg when required.

Gardner-Denver B-72H Paving Breaker is a powerful machine of exceptionally strong construction. It is ideally suited for all types of general demolition work.

GARDNER-DENVER
Since 1859



Electronics IN EVERY PLANT

THE magic of Electronics will be used in every plant to create new and useful products—to multiply production—to effect economies—to do heretofore impossible tasks of measurement and control of industrial processes.

Already, M-H/Brown engineers have pioneered and developed new Electronic instruments which will take the word "impossible" from the industrial lexicon.

In this hour of history M-H/Brown engineers fittingly symbolize our faith in the future—that Electronic instrumentation (now at war) will blaze new trails in the manufacture of peacetime products.

The Brown Instrument Company, 4509 Wayne Avenue, Philadelphia, Pennsylvania, a division of Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota. Offices in all principal cities. 119 Peter Street, Toronto, Canada — Wadsworth Road, Perivale, Middlesex, England — Nybrokajen 7, Stockholm, Sweden.

Instruments by **BROWN** *and Controls by*

MINNEAPOLIS-HONEYWELL

MAKE ONE BEARING OUTLIVE TWO!

One plant that regularly had two or three bearing failures a month writes us, "We have had only one bearing failure in five years since using LUBRIPLATE"... another writes, "Pulled our ball bearing temperatures down from 170° to 130°F"... still another, "If LUBRIPLATE cost $1.50 a pound we could still afford to use it."

BALL BEARING LUBRIPLATE

Over a period of years this outstanding grease type lubricant has reflected superior performance on the general run of ball and roller bearings operating under normal conditions at speeds up to 5,000 R. P. M. and temperatures from zero to 300 degrees F.

Long time users of BALL BEARING LUBRIPLATE everywhere attest to its superiority in providing cool and quiet operation – protection against corrosion, and of major importance, substantial reduction in bearing replacement costs.

Write today for your copy of Bulletin No. 1-43 containing valuable data on the lubrication and care of anti-friction bearings.

7 FACTS ABOUT LUBRIPLATE

1. *LUBRIPLATE produces an ultra-smooth, wear-resisting bearing surface.* 2. *LUBRIPLATE reduces friction, thus lowering maintenance and power costs.* 3. *LUBRIPLATE resists rust, corrosion and pitting.* 4. *Most LUBRIPLATE products are white. LUBRIPLATE assures clean lubrication.* 5. *LUBRIPLATE outlasts ordinary lubricants many times.* 6. *LUBRIPLATE is economical—a little goes a long way.* 7. *LUBRIPLATE is available in fluid and grease types for every need.*

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
Newark, N. J. **SINCE 1870** Toledo, Ohio
DEALERS FROM COAST TO COAST

LUBRIPLATE

"Its the Film"

THE MODERN LUBRICANT *that Arrests Progressive wear*

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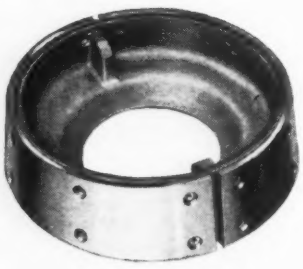

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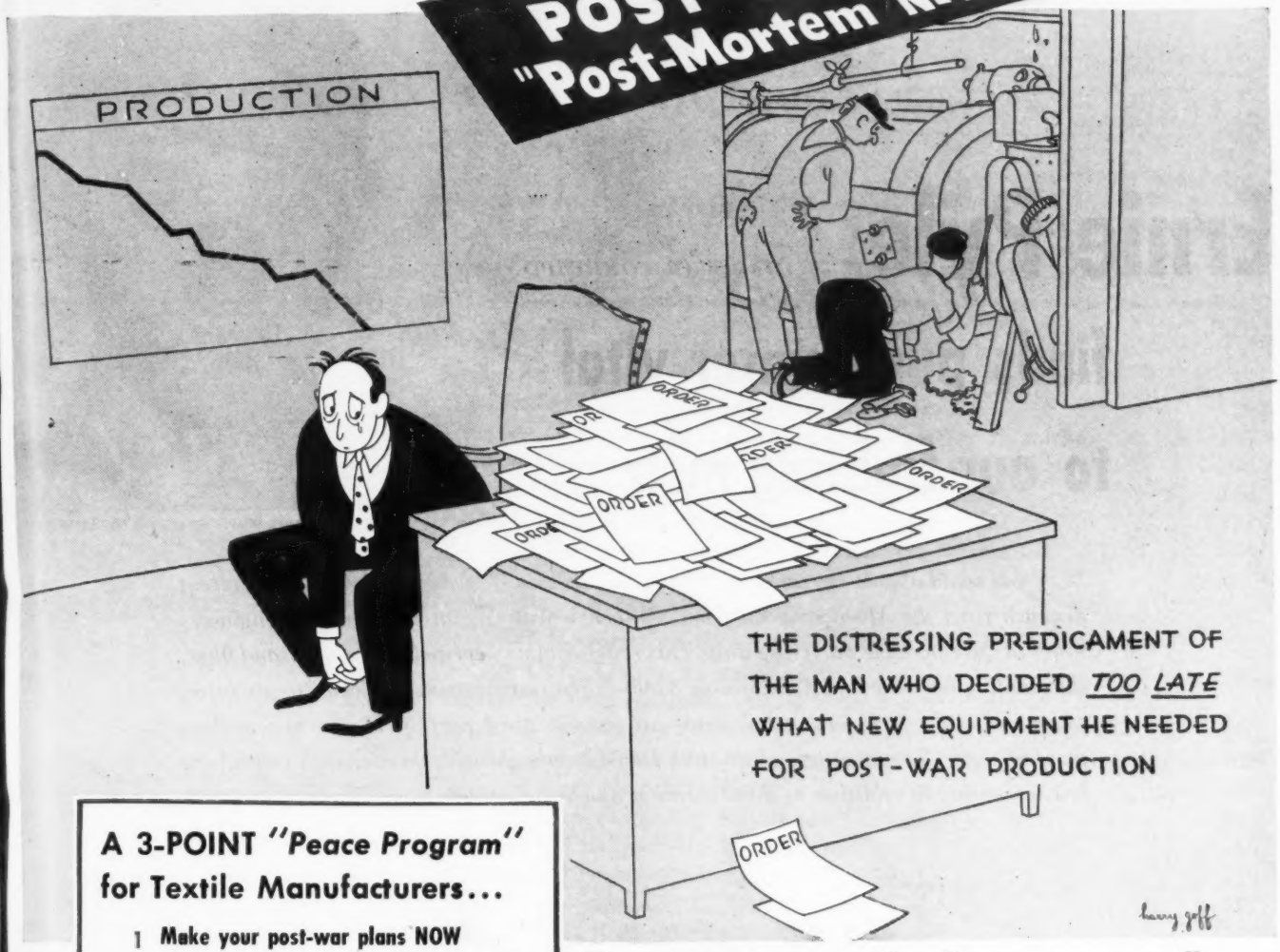

THE DISTRESSING PREDICAMENT OF THE MAN WHO DECIDED *TOO LATE* WHAT NEW EQUIPMENT HE NEEDED FOR POST-WAR PRODUCTION

A 3-POINT *"Peace Program"* for Textile Manufacturers...

1 **Make your post-war plans NOW**
don't let peace catch you without definite plans for products, markets, sales and production.

2 **Decide on new equipment needs NOW**
don't wait until the war is over before making a thorough survey of your production equipment and deciding what machines must be replaced.

3 **Order your new equipment NOW**
don't risk serious delay in securing necessary new equipment for post-war production. Metals and other basic materials will continue to be scarce for a long time after the war ends.

If you are going to need new dyeing and finishing equipment after the war, we earnestly recommend that you place your order with us *now*. Our "Post-War Purchase Plan" assures you prompt delivery when war restrictions are lifted. Write now for complete details of this plan.

The equipment in most textile mills is wearing out rapidly. Much of it will have to be replaced after the war. But a lot of it *won't* be replaced for a *long time* after the war is over . . . just because some manufacturers waited too long to make up their minds what they needed. NOW is the time to do that.

Without interfering with your war effort, we suggest that you make a complete survey of your equipment . . . determine what machines will have to be replaced. But don't stop there . . . *order those machines right away!* If you wait until after the war is over, you may find yourself at the wrong end of a long waiting list.

Ask us about our "Post-War Purchase Plan."

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Ernie Pyle, *FAMED WAR CORRESPONDENT,* finds pure water vital to our fighting men

ERNIE PYLE, FAMED SCRIPPS-HOWARD WAR CORRESPONDENT

"... you could almost say an army marches on its water," wrote Ernie Pyle in a recent dispatch from the Mediterranean front. "When a water point is found, the engineers wheel in their portable purifying unit. This consists of a motorized pump, and sand filter, chlorinating machine and a collapsible 3,000-gallon canvas tank. The chlorine we inject comes in powder form in 1 gallon cans—we usually use 1 part of chlorine to a million parts of water. The engineers of the 45th Division brought with them enough chlorine to last 6 months. In addition to chlorine, alum and soda ash are injected into the water."

THAT "chlorine in powder form" which Ernie Pyle speaks of is, of course, high test calcium hypochlorite, and, as likely as not, it's Mathieson HTH. That soda ash, too, is probably fused soda ash in tablet form made by Mathieson especially for use by our armed forces overseas.

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Textile World

NOVEMBER, 1943 • VOLUME 93 • NUMBER 11

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LABOR-MANAGEMENT COMMITTEES in the textile industry will be discussed in a comprehensive article outlining the method of setting up the three different types of committees and describing in detail the results which have been obtained in a prominent textile mill which has had several months' experience with a Labor-Management Committee. Another timely article scheduled for December is on the use of charts for controlling quality of fabrics for military purposes; this method of control is regarded favorably by the Quartermaster Corps and therefore is of primary importance to textile men. Three major developments which will be given attention are: high temperature hot water heating in woolen and worsted plants, progress in continuous open-width peroxide bleaching, and a new application for electronic equipment. Among other technical articles tentatively scheduled for December are: Reducing Eyebrows and Clearer Waste, Quilling Room Management, Preventing Fires Through Proper Lubrication, and Effect of Card Speeds on Yarn Quality. The series on the functions of the designer will be continued.

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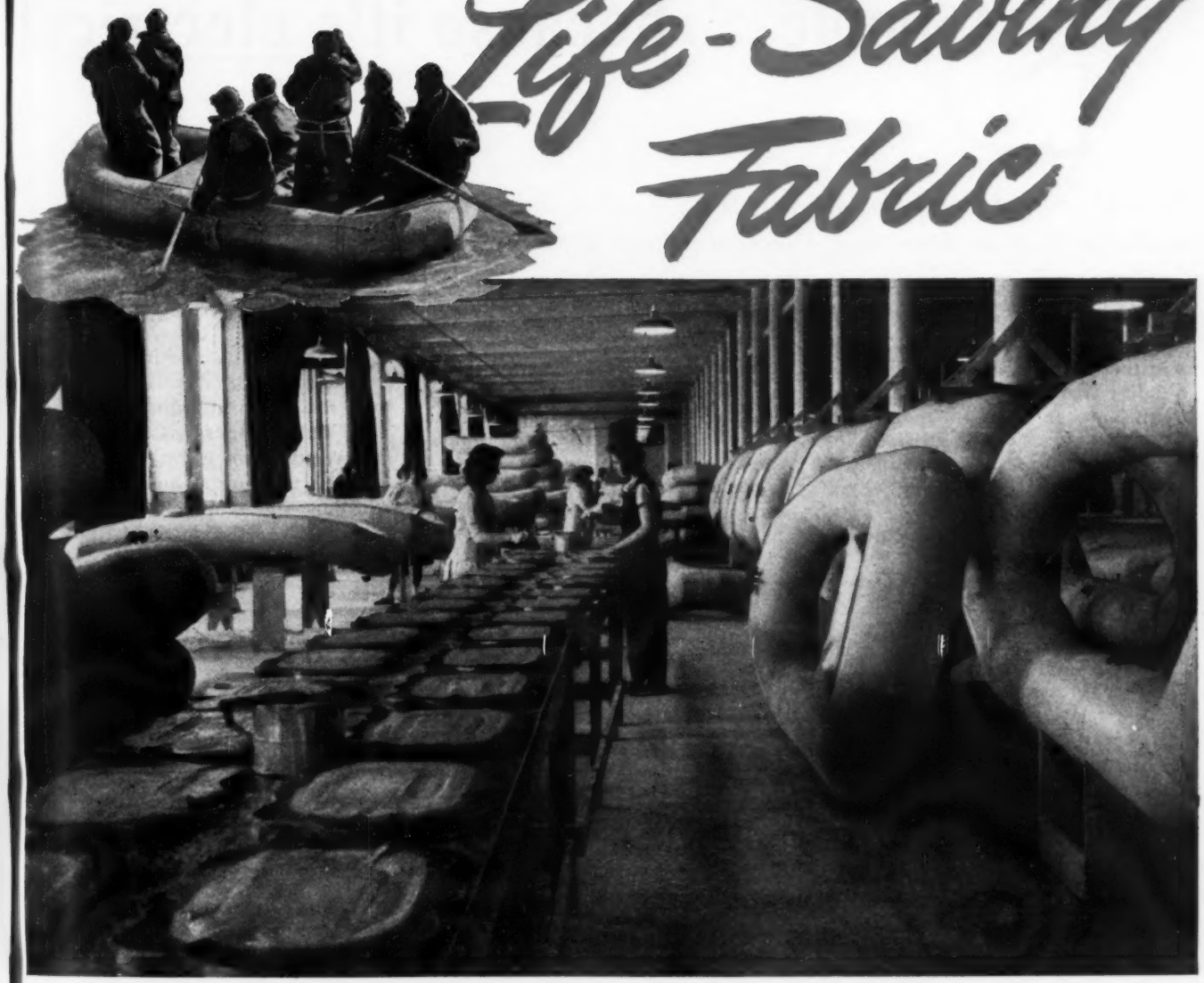
Life-Saving Fabric



INFLATED as they hit the water, rubberized fabric life rafts spring into life to provide refuge for forced-down fliers.

To produce this and other textiles for war use requires 'round-the-clock operation and increases the need for Texaco Lubricants to help stem the added wear in textile mills.

Cushioning spindle vibration, resisting hunting and lagging, *Texaco Spindura Oils* permit higher speeds and heavier packages. They assure more uniform tension and twist... a smoother, stronger yarn. By resisting oxidation and thickening they lessen fogging and stock spoilage.

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FOR THE TEXTILE INDUSTRY

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Simple . . . because it's electrical

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In the Universal Automatic Bobbin Winding Machine (No. 99), *electrical* means—proven successful and safe on hundreds of types of industrial equipment—are combined with mechanical means to perform functions of bobbin loading, winding and doffing.

The use of electrical controls means that the *simplest* possible mechanisms are provided to do the work. Less machinery is needed—fewer cams, gears, shafts—and there is less opportunity for wear and breakdown.

For example, to relieve strain on the yarn at the start of winding, it is helpful to open the tensions momentarily. To transmit motion from the power source to the tensions high above the spindle, a wire and a solenoid take the place of the several mechanical connections which would otherwise be necessary.

Experience to date has proved that the use of electricity increases efficiency and reduces repair, without introducing any undesirable factors. After the war, many mills will enjoy the benefits of quality winding at high speeds, with loading and doffing performed automatically, on the Universal Automatic.

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☆

LIKE a leaf floating downstream, we are being carried along toward a new and uncharted economy. What this new economy will be like will depend, to no small extent, upon what industry does or fails to do during the coming months. Time is short; in fact, we may suddenly find ourselves standing on the threshold of a peace economy with our war boots still on our feet.

While bending every effort to win the war, we cannot afford to be caught unprepared for the peace. As Prime Minister Churchill said at Harvard, we are "bound, so far as life and strength allow and without prejudice to our dominating military task, to look ahead to those days which will surely come, when we shall have finally beaten down Satan under our feet and find ourselves with other great Allies at once the masters and the servants of the future." Unless we do look ahead, there is danger that we may become neither the masters nor the servants, but merely the victims, of the future.

The war has quickened our ailing economy and opened our eyes again to the possibilities of peace-time plenty. But it has also brought great dislocations of labor and capital; it has led to abnormal patterns in prices and income distribution; and it has created inflationary pressures with enormous potential powers to injure or to help us in the transition from war to peace.

The pattern of life in postwar America will be just what we make it. All of us will have a hand in shaping that pattern, but business men will have a special responsibility in the reconstruction. As employers of labor and capital and as enterprisers assuming the risks of new ventures, they will have to plan and carry out the conversion from war work to full peace-time production. Because of their key role, business men have a special opportunity to discover, and to help others to understand, the conditions which are necessary if they are to do their job satisfactorily.

This is a narrow view of postwar problems but it is a central view, because no one condition is more vital to the health of the world than a high level of production and employment in the United States. We cannot hope to lead the world out of economic chaos if we fail to put our own house in order. If we fail to adjust our domestic economy, we may destroy Adolf Hitler; but we will not destroy the germ that breeds "Hitlers." If we do not maintain the production necessary for supporting a large volume of imports and exports, then the plans for international monetary stabilization, for good relations with our neighbors, for rehabilitation of stricken countries, and for strengthening the democratic bulwarks against dictatorship are all likely to come to grief. We must demonstrate our capacity for world leadership, or be content to follow the leadership of others.

The prospects for achieving a sound and vigorous economy in the United States are not so good as to warrant complacency on the part of men genuinely interested in free enterprise and the political freedoms incident to it. We have yet to find means to utilize our vast and abundant resources for the good of all. We have yet to learn how to keep men from the terrible experience of unemployment and the fear of want which makes them willing to sacrifice freedom and opportunity for almost any promise of security. We have yet to reconcile the conflicting interests of labor, agriculture, and business so that they can work together effectively. We have yet to learn how to check the fever of inflation and cure the palsy of depression.

When we were attacked at Pearl Harbor, we realized our physical peril immediately and united in a tremendous common effort against the enemy. The onset of economic perils is less obvious. No bombs will signal the deterioration of the private enterprise system, the extension of regimentation, the further control of busi-

ness by government, and the concentration of political power in less and less responsible hands. If these things should befall us, they will come insidiously while we are preoccupied with self interests and oriented by popular misconceptions. If the freedoms of the individual shrivel as the state grows in power, it will be because the individual is too indifferent or complacent to concern himself seriously with economic problems. If our people are misled by false prophets and demagogues, it will be because business men did not understand economics, because scholars were too ignorant of practical affairs, and because we failed to produce economic statesmen of sufficient stature for the task in hand.

Thinking is hard work. Thinking about things outside our personal experience, about economic processes that are broader and in some fundamental respects different from buying and selling or running a business – is strenuous mental labor. Thinking straight about problems that are beyond our personal and immediate status and our pocketbooks, thinking about problems that involve nation-wide production, nation-wide employment and nation-wide buying power – in other words the operation of our entire economic system – involves real self-discipline. Yet there is no other way to safeguard our freedoms. We cannot rely on trial and error; tinkering takes too long; social experiments which turn out wrong can be undone only at great cost – if at all. If we proceed blindly, we shall flounder into an economic and political morass from which we cannot escape.

We floundered badly all through the Thirties, until the war lifted us temporarily to higher ground. When the war boom is over, we shall be back floundering worse than ever unless we find a solid road along which to proceed.

America has grown rich and strong under a system of political and economic freedom. Opportunity and the necessity of self-reliance have brought forth great accomplishments. The hope of profit and the spur of competition have urged men on to find new and better products, new and better methods, and to risk their savings in pioneer investment. Never has a country achieved so high a standard of living and afforded so large an opportunity for the individual man and woman. It is not surprising that some distinguished business leaders, looking back over their own experience, tell us that everything will be all right if only there is "less government in business."

I wish the solution were as simple as that. However this is only part of the answer. It is becoming increasingly clear that industrial capitalism as we know it contains within itself certain fundamental weaknesses which can lead to its destruction if they are not counteracted. No democracy can survive when twenty to thirty per cent of its workers cannot get jobs. That happened here in the Thirties. For years on end, despite fumbling efforts at recovery one out of every five workers was denied a chance to earn a living in private business. We shall never again have such mass unemployment as occurred in the bottom of the Depression, because the government will take it upon itself to create jobs if business cannot offer them. Whenever that happens, however, the area of private enterprise will be reduced and that of government will be expanded – and the concentration of political power will be increased. This is the challenge we business men face today, and ours is the first opportunity at finding the solution.

The crux of our economic problem is unemployment. Unless there are jobs for ninety to ninety-five per cent of those who are able and willing to work, there will be widespread fear and lack of opportunity, which will drive labor unions, agricultural groups, and business interests to take self-protective measures. Such measures are certain to restrict production, stifle progress, and imperil our democratic way of life. Not all our problems will automatically be solved if we learn how to avoid mass unemployment, but they will at least then have a good chance of solution.

And so American businessmen face a great responsibility! We will have to find the answer to a great many momentous questions. We will have to delve into problems that cannot be solved by precedent.

Looking backward to these times, future historians are likely to say that here we Americans stood at the crossroads and, consciously or not, made our choice between a system of private enterprise and personal freedom and a system of collectivism and regimentation.

It is particularly appropriate, therefore, as the problems of our time take shape and as events rearrange their order and importance, to appraise the steps we are taking and point the way we are going. It is my plan to present such analyses from time to time to the one-and-a-half million readers of McGraw-Hill publications.

President, McGraw-Hill Publishing Company, Inc.

Textile World

EDWIN D. FOWLE, EDITOR

Beyond the Yarn and Fabric

THE STEPS TAKEN by Atlantic Rayon Corp. to integrate all operations from raw synthetic yarns to products for the ultimate consumer, as described in detail in this issue, represent one of the outstanding attempts in the textile industry to overcome a postwar reconversion problem. It is an attempt which should warm the heart of Paul G. Hoffman, chairman of the Committee for Economic Development, as its primary purpose is to maintain in peace time the production and employment of an organization which has been and is extremely busy on a war job and which has for that purpose greatly expanded its facilities and payroll.

The Atlantic Rayon development also represents the latest attempt by a textile organization to correct what is often pointed out to be one of the great ills of the textile industry—the lack of integration and the consequent lack of unified control of quality, price, and production schedule from raw material to ultimate product. Many a textile mill has seen the quality of its yarns and fabrics sacrificed and its good name blackened by poor tailoring in garments. Many a mill has been squeezed between high prices in the material it buys and low prices in the material it sells. Many a mill has been forced to produce at a high rate while prices acceptable to speculators were low, only to remain relatively idle while the goods it had sold were disposed of at profitable prices.

ATLANTIC RAYON'S TEXTRON STORY is proof, if we need it, that the textile industry has its aggressive organizations composed of relatively young and highly energetic men who have vision, imagination, and the will to invest the money necessary to attain a desirable objective. Unique as may be some of the conditions under which Atlantic begins its vertical integration, the rewards of its courage will be watched with much interest by the entire industry. The final test will come when production is once more unlimited and sales competition keen.

Vertical integration on a wide-spread scale would work profound changes in the textile industry. It would, for example, remove many of the sales resistances along the line, which tend to beat down prices and result ultimately in a low-profit, low-wage industry. Such integration also, while it would help insure just rewards for high quality of manufacture, would eliminate the need for any excessive quality, which is an economic waste, in the intermediate products. There would be no rejections of yarns and fabrics based solely on a turn in the market. The materials specified for garments would be based more directly on the needs and desires of the retail stores, with an accompanying reduction in specification errors.

OPPOSED TO VERTICAL INTEGRATION is the thought that the garment manufacturer who has his own fabric mill, or the weaver or knitter who has his own yarn mill, is without the flexibility of the manufacturer who can buy his fabric or yarn from any mill which happens to have the particular machinery to produce just the material he wants for a new or different product. Therefore, any vertical integration must be planned either to provide maximum flexibility in manufacture or to serve a field in which flexibility is not important. Atlantic Rayon seems to have adequate flexibility for the fields it has entered thus far.

Another effect of more extensive vertical integration would be to build larger units in the industry. These would be in much closer contact with the general public and therefore better known by it. The trend would build up individual textile manufacturers to greater prominence and in that way give the textile industry (one of the biggest in America) more voice in national affairs.

In many ways, therefore, we like the prospect of a more vertically integrated industry.

Edwin D. Fowle

A talk before the American Association of Textile Technologists in New York, Oct. 6, 1943

The Textile T IN POSTWAR P

NATIONAL INCOME

During Last Postwar Era	in Billions of Dollars
1919	62.9
1920	68.4
1921	56.7
1922	57.2
1923	65.7
1924	67.0
1925	70.1
1926	73.5
1927	74.0
1928	75.9
1929	79.5

SOURCE: The Conference Board

INCOME AND SAVINGS OF INDIVIDUALS

Year	Individuals' Total Income Minus Taxes in Billions of Dollars	Savings of Individuals in Billions of Dollars	Per Cent Saved
1929	79.6	8.8	11.1
1930	70.7	5.8	8.2
1931	59.6	5.4	9.1
1932	45.6	2.6	5.7
1933	44.5	2.1	4.7
1934	51.0	3.3	6.5
1935	56.3	4.1	7.3
1936	65.2	6.1	9.4
1937	69.2	6.7	9.7
1938	62.9	4.4	7.0
1939	67.7	6.0	8.9
1940	73.2	7.5	10.2
1941	88.2	13.7	15.5
Total	833.7	76.5	9.2
1942	108.8	26.9	24.7
1943*	126.0	36.0	30.7
Total	234.8	62.9	27.9

SOURCE: U. S. Department of Commerce

** Estimated by Dept. of Commerce as of Aug. 1, 1943. Estimates revised since publication of "Markets After the War."*

● Before we take a close look at the position of the textile technologist in the postwar picture, it is desirable to take as broad a look as possible at the whole picture of American economy in the postwar era, because this will show the niche which the technologist can and must fill. It is a vitally important niche, as I shall endeavor to make clear.

There is a multitude of opinions as to what is going to happen to American economy in the postwar era. The statistically minded look back to the last war and point out that our national income was 31 billion dollars annually when the war started in 1914, and was more than double that—over 62 billion—in the year following the war, 1919. Furthermore, the national income continued to rise after 1919, reaching its peak of 80 billion ten years later, in 1929. On the basis that history sometimes repeats itself, these facts offer encouragement with respect to the years immediately following the present war.

These same economists are now doing their best to analyze the present situation in a search for further encouragement, and they find it in the following: The Department of Commerce estimates that the total income payable to individuals has risen from 76½ billion dollars in 1940 to an estimated 131½ billion in 1943. Even allowing for the increase in taxes and for the increase in spending, the savings by individuals have increased from 7½ billion dollars in 1940 to an estimated 36 billion dollars in 1943. Never before in American history have individual savings reached anything like this figure. It is believed that they will accumulate to 100 billion in 1944. There can be no doubt that these savings represent a vast backlog of purchasing power which will be released sometime after the war.

The Department of Commerce also estimates that *business* this year will have accumulated 13½ billions of dollars in reserves, and this sum is likely to go largely for new equipment after the war.

WHERE TEXTILES FIT. Figures like those I have just quoted are encouraging to many deep-delving statisticians so far as the entire national picture is concerned. The question which faces us in this group tonight, however, is one as to how well the textile industry fits into this optimistic picture.

One sales manager of my acquaintance recently remarked, "Of course they'll have money to spend; but they'll buy automobiles, not textiles."

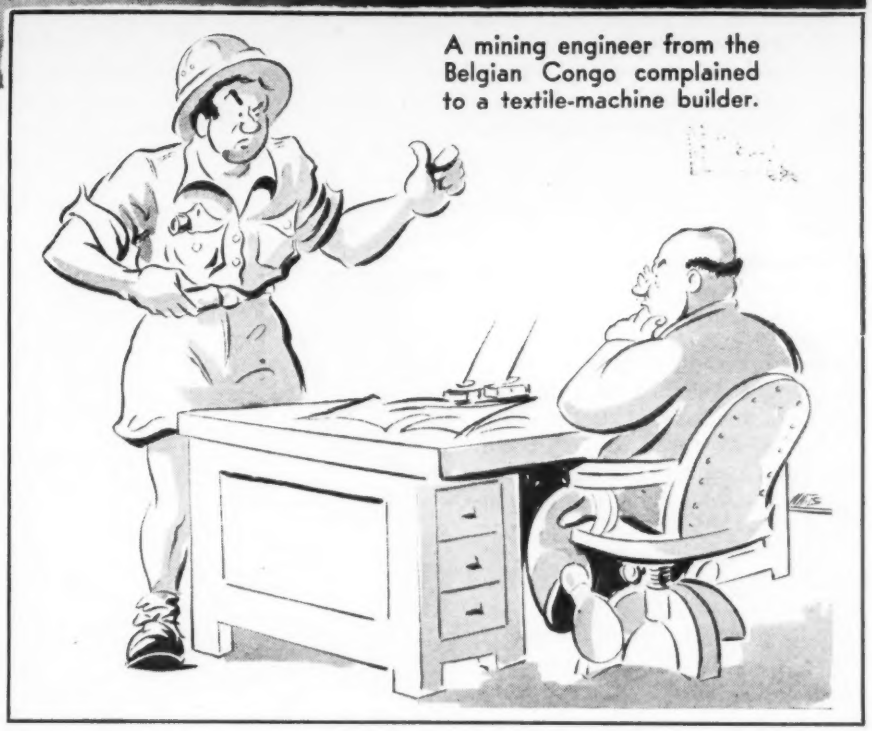
In the first place this particular gentleman had not seen that interesting booklet entitled "Markets After the War," put out by the Bureau of Foreign & Domestic Commerce earlier this year. True, that publication indicates on a hypothetical projection that, if postwar reconversion is successfully applied, if employment is at a high level, and if prices are not too high, the postwar purchases of passenger cars could reach the rate of over 5⅓ billion dollars per year, which is considerably over the 2⅓ billion dollars spent in 1940. Radios, phonographs, washing machines, refrigerators, and a lot of other things could make big gains too. But the same booklet shows that the purchase of clothing and accessories could, while all this is going on, reach over 9⅓ billion dollars, which is a good increase over 1940's 5⅓ billion dollars.

All clothing and accessories are not textiles, and all textiles are by no means clothing and accessories, but at least the Bureau's study indicates that the average consumer, if he has the money and can spend it as he chooses, will buy automobiles and textiles. Clothing purchases will be matched by purchases of rugs, furniture coverings, draperies, and thousands of other consumer and industrial products (including automobiles, incidentally) which involve textiles either in the finished product or in the processes of manufacture. And remember—the Bureau's study did not take into consideration such special post-war factors as the shortage of textile production abroad, the huge requirements for lend-lease and relief, and the accumulated savings of the American public.

The desire for textiles is never satisfied. We know, for example, that people in the higher-income brackets

Technologist PLANNING

By EDWIN D. FOWLE
Editor, TEXTILE WORLD



A mining engineer from the Belgian Congo complained to a textile-machine builder.

buy not only higher-priced textiles, but also greater quantities of textiles than those in the lower-income brackets—proof positive that textile consumption is limited by income, not by the satisfaction of need or desire. Test yourself—is your wardrobe, for example, as complete as you would like? If it is, I'll bet that your wife's isn't.

EVEN IN THE CONGO. Does this apply only where standards of living are high? Listen to the following story:

A mining engineer from the Belgian Congo, while visiting this country, called on some builders of textile machinery to complain about the slowness of deliveries to a textile mill in his locality. What did he care about deliveries of machinery to a textile mill, he was asked. Was he financially connected with the mill? No. Was it on a friendship basis? No. Then why did he concern himself? Because, he said, he had to induce natives to work in his mine. No matter how much he paid them, they wouldn't work unless they had something to spend their money for. A textile mill produces something they want. They would go to the nuisance of earning money if they could buy textiles.

The early American Indians, who were somewhat short of department stores, spun and wove. In the growing industrialization of Latin American countries, textiles lead. China now wants to develop a strong textile industry. Russia, too. Yes, textile materials are near the top of the shopping list of the whole world, always.

I have painted the rosy side of the picture first. This was to keep you happy as long as possible this evening. Still, I do not believe you should be discouraged just because you have a job of work to do. After all, if the textile industry were all set to roll along forevermore without benefit of technologists, where would you be? Furthermore, there are some quick answers for some of the blacker threats, such as the first one I shall bring up.

Awhile back, I stated that national income rose for over ten years after the close of the last war. Some of you older textile men might have jumped up at this point, if you hadn't been so polite, and said, "Yes, that's true, but the textile depression started in 1923, only five years after the war." Well, what was the cause of that? It is my personal opinion that of several contributing causes the chief one lay in the relatively unbridled expansion of textile-manufacturing capacity during and shortly following the war. There is no such expansion this time. The WPB is holding us down to physical size. Therefore, I believe, we won't have a surplus of spindles and looms and knitting machines after this war. And, of course, even if we have only five years of prosperity after the war, this should give us ample time, if we are not deadened by the enervating effect of a boom period, to get our house in order in preparation for what may follow.

Indeed, the whole problem involves a time element. It seems to me that many people who discuss postwar do not make clear whether they are talking about the years immediately following the war or whether they are talking about a whole generation following the war. I am thinking about the latter; and I believe we in the textile industry need not be tremendously concerned, from the viewpoint of our own relatively narrow and selfish interests, about the period immediately following the cessation of hostilities, since we have a relatively light conversion problem.

Please do not misunderstand me on this—I do believe that the personnel of the textile industry should be playing a part—and a most important part—in *national* planning for the start of the postwar era, through such agencies, for example, as the Committee for Economic Development. Our prosperity must lean heavily on national prosperity—and probably also on international prosperity. But from the angle of what we do for the textile industry proper, I believe we should simply make certain that we start off and continue our activities in the postwar era on as sound and on as long-enduring a basis as possible. In other words, we ought always to be adhering to such a basis; and the plans we make today, while appropriately labeled "postwar," differ in no essential

way from the plans we should be making at all times.

Believe it or not, I am now about to narrow this discussion down to the particular position which the technologist holds in the economic picture, but there are a couple of steps on the way down.

THE MAJOR "IF". If you will recall my quoting of the hypothetical projection offered by the Bureau of Foreign & Domestic Commerce a few minutes ago, you will remember I mentioned several "if's." These "if's" apply to any figures one can develop on the postwar problem; and the most important of them, from the angle of either postwar or our American economy at any time, is that which involves maintenance of employment at a high level. This problem, always important, is brought to the forefront at the present time, because we are faced with the question as to what can be done with our huge armed forces when they are demobilized, and the question as to whether even our present industrial employment can be maintained at anything like the present level.

Employment is not an individual unit in our economy. It is only part of an economic circuit, something like an electric circuit, with production acting as the generator. Production feeds income through employment into purchasing power, and income flows back from purchasing power through the distribution of goods into the generator—production—again. Since the circuit exists, what we need to do is keep the generator operating.

The only reason that our generator ever fails to operate is the fear on the part of manufacturers that they cannot sell what they produce at a price sufficient to cover the cost of production.

Among the various schemes for overcoming this hazard, the most fantastic is one of my own—namely, the setting up of insurance organizations by private enterprise to protect the manufacturer against this hazard—but such a scheme requires long planning by insurance men and financiers, if it is practical at all, and tonight does not seem to be the time or place to discuss it in detail.

JOB FOR TECHNOLOGIST. A more thoroughly tried and time-honored scheme lies right smack at the door of the technologist. It consists of his instilling courage and confidence in the manufacturer by helping him to fill a definite consumer need or desire. Once the manufacturer realizes that he has plans on his desk for a product which will sell profitably, he will go ahead and produce.

In fact, while we are on this point, we might as well remind ourselves that it is the technologist who is at the very basis of our whole American economy. Perhaps many of you saw an article published recently in one of the general magazines explaining the origin and operation of the capitalistic system. As I recall this story, it described a group of primitive people who found it necessary to carry water from a reservoir on the mountain side down to the village. One of the villagers conceived the idea of piping

Right smack at the technologist's door.

water from the reservoir to the village, and before long he was giving water to his neighbors in exchange for their services along other lines. Eventually he had accumulated enough capital of one sort or another to finance new ventures which some of his neighbors conceived. As a capitalist, he helped to make life in the village easier and more pleasant, and he was therefore also (even though perhaps unwittingly) a public benefactor.

What I want to emphasize tonight, however, is that when he piped that water down from the mountain to the village, he became a technologist—we should probably call him a hydraulic engineer. His neighbors in the village who conceived ideas of value to other neighbors likewise became technologists in their own fields. This analogy should make perfectly clear your importance, gentlemen, in the economic picture. But do not get swelled-headed about it. Technology has to move constantly onward and you have got to lead it or keep up with it.

Now there are three ways in which the textile technologist can fill the consumer's need or desire—first, by developing a brand new product; second, by developing an improved product; and third, by making an old product at less cost, so that it may be sold at a lower price.

NEW PRODUCTS. The best way in which you can serve the national economy is by producing brand new products which do not replace anything else now on the market. In other fields, some outstanding examples of this procedure are air-conditioning, dehydration of foods, television, helicopters, and so forth. In the textile field you must conceive articles of clothing that have never been worn before and which should be additions to existing wardrobes, because new types of clothes usually call for new types of fabrics. The outdoor life which became so popular in the decade before the war, and which may receive further stimulus from the experiences of our armed forces during the war, presents one of the best opportunities. Men's business clothes are long overdue for a change toward greater comfort. Household furnishings and even industrial fabrics also lend themselves for exploration toward the development of new textiles. All the new products put on the market by other industries must be examined with a view to the development of new textile application for them. Perhaps new fabrics can be devised for the new forms of transportation — the helicopter, for example. Closer relation between industry and ultimate consumer would help.

One cannot consider the subject of new products without thinking about the new fibers which have arrived on the market. These, and also the older synthetics, offer an opportunity for experimentation by the textile technologist above and beyond any like opportunity he has ever had before. Mills in scores of localities are so conscious of this fact that they are tumbling over each other to procure samples of yarn to try out for this and that new product. And it is only the beginning—more new fibers are on the way.

Some of the fabrics which are prominent in the war may be adapted to civilian use after the war. The 9-oz. sateen may be suitable for sports jackets and work jackets, if it is not too expensive; the new wind-resistant fabrics, for outdoor sports; the tackle twill, for raincoats; the rayon parachute fabrics, for umbrella cloth; the ripstop parachute fabrics, for awnings;

the pile-fabric cushion-sole socks, for golf; and so on. A member of our Washington office had the temerity to suggest the other day that the principle of camouflage might be applied to dress fabrics as concealment for over-exaggerated parts of the female form.

IMPROVED PRODUCTS. The second opportunity for the textile technologist, as I have already mentioned, lies in the development of improved products or, to put it in another way, in the improvement of old products. Progress along this line will help the national economy if the improved products enjoy a wider market without replacing something else or if in any other way they require more people for their production.

Such improvements might be accomplished, for example, in the finishing. While the war may have produced no startlingly new types of finish, it has stimulated interest in waterproofing, water-repellency, gas-proofing, mildew-proofing, and to some extent in moth-proofing. Permanent and durable finishes have come more to the fore. The Government's insistence on vat dyes has stepped up productive capacity for those dyes, and this fact will be felt in our civilian economy. The use of the fast pigment colors may increase.

And the third and final contribution which the technologist can make, as I have already stated, is in the production of old products at lower cost. This step may increase the market for some things without replacing other things, but primarily it helps only one industry in competition with other industries or one manufacturer in competition with other manufacturers. Of course, it helps those capital-goods manufacturers in one industry who can supply cost-reducing equipment to another. In other words, technological progress in the textile industry benefits the business of the manufacturers of equipment and supplies for this industry.

TEXTILE MACHINERY. There is no question that many mills are expecting great changes in production methods after the war. They believe that the machine builders are learning many new production tricks in their war production. The machine builders, on the other hand, seem to be a little alarmed by this expectation on the part of the mills, and they point out that new developments are always the result of much planning, experimentation, and actual trials in the industry; and they say that these steps cannot be accomplished overnight. They feel that they have long been unjustly criticized for not producing machinery which is as efficient as that found in some other industries, and they point out that until recently the textile industry has had to deal with a very variable raw material, and furthermore that its great stage of technological progress occurred many years ago when the industry was young, just as it is occurring now in other industries which are still young. They agree, of course, that they have learned some new tricks through their armament work, including, for example, greater precision of manufacture, employment of the lighter metals, and the use of the sintering process, which makes from powdered metal many parts that require little or no machining; but these improvements are not revolutionary with respect to their products.

I might also add that, because the mills have lately been pounding their machines at the highest rate in history, the machine builders are going to be terribly busy filling orders as soon as the priority rulings are lifted; and good business is rarely conducive to a high rate of technological progress. Therefore, it may prove desirable—and perhaps important, from the long-range view—for the mill technologist to do some developing on his own, because the machine builder is usually willing and always able to build a machine the way the mill wants it built. The machine builders rightly consider themselves a part of the textile industry and want to help it in any reasonable way.

The metal in a self-lubricating bearing has porosity and strength, but it lacks a few other properties of a textile material.

Actually, I believe that postwar textile machinery will come somewhere between the expectations of the mills and the expectations of the machine builders. The mills, in common with everyone else, are expecting radical changes to come more rapidly and more impressively after the war than they can possibly come. The machine builders, on the other hand, have not begun to explore the possibilities in, for example, such relatively new developments as electronics.

ELECTRONICS, FOR EXAMPLE. The very fact that the electronic tube can detect a slight electric current flowing through a moist yarn and can therefore, through a relay, stop a machine when a yarn breaks, is an indication of what this new science can offer to textile manufacture. It was only a few years ago that some mills started to eliminate the bashing in and the tearing down of doors between departments, due to their being struck by inter-departmental trucks, through adoption of the electric-eye door controls. These controls in some cases paid for themselves by reducing the loss of humidified air, since they made certain that the doors were always closed when not in use. Electronic drying offers possibilities, with a heat that will penetrate immediately to the interior of, for example, a rayon cake. The countless other applications include motor controls, communication systems, electronic microscopes, illumination controls, smoke controls, safety devices, jacquard-card cutters, yarn-speed controls for knitting, color-register detectors for printing, filling-straighteners for tentering, seam detectors for shears, etc. I have dwelt on this matter of electronics, because in my humble opinion we are entering the electronic age and this science will continue to play an ever increasing part in our daily lives.

Some people look to the tricot knitting machine as having possibilities in the production of many useful and desirable fabrics at low cost after the war. The tow-to-top process for producing rayon staple holds promise—imperfectly developed as the idea may be today. Pot spinning for the cotton, worsted, and woolen systems is being experimented upon, and this idea is no more fantastic than the system for high drafting continuously under false twist, in which some technologists have not as yet lost faith. Open-width continuous peroxide bleaching is arriving.

Filling winders are going to go places after the war, encouraging the

(*Continued on page 164*)

Why WASTE SPINNABLE COTTON?

Change in flat speeds and settings cuts loss of usable fibers found in card strips

Reduction in number of flats brought into position in a given time above the back plate tends to reduce both the amount and richness of the flat strip.

By E. H. HELLIWELL

● The amount of good spinnable cotton fiber contained in flat strip waste stands as an open challenge to machine designers, builders, and boss carders alike. Present design and construction of cotton cards, with conventional speeds and settings, permit the removal of undesirable trash from cotton, but with it a large amount of valuable fiber. Reduction of usable fiber in waste must be given careful consideration by cardroom overseers. Although there may be some consolation in the knowledge that good strips bring a high resale price, even this consideration does not alter the fact that at the present price of good grade cotton, every pound of good fiber removed in strips means a net loss of about 10¢ plus the cost of handling and baling the waste.

Flat strips generally run to about 3% of the stock fed, and frequently about three-quarters of this is good fiber with a mean staple length equal nearly to that of the delivered sliver. If one-half of this good fiber could be saved, it would result in an estimated saving of about $1 per card per week. Over a year's time it would equal a savings of $5,000 per year for every 100 cards in the plant.

These facts regarding the amount and value of usable fiber contained in flat strips are well known to all, including the dealer who buys the waste. This accounts for the relatively high price that strips bring in the market.

If conventional settings, speeds, and methods of setting cards have failed to reduce the amount of good fiber removed, it may be advisable to use methods that may be considered unorthodox. However, the most important consideration in any proposed change should be the maintenance of the required quality of sliver. The first step is to review all available facts and theories regarding the functions and operation of card parts. Important also is an analysis of the effects of the various conventional card settings and

speeds on the amount and nature of the waste.

Authorities recognize three forces at work simultaneously in the operation of a card: air currents, centrifugal force, and the action of the card wire. The position of front plate, back plate, and screens can be set to give partial control of the air currents. The speeds of cylinder and licker-in influence the centrifugal forces. Other settings control the action of the card wire. Some experts contend that a greater utilization of centrifugal force by increasing the cylinder speed would result in increased removal of trash by throwing it onto the flats and screens.

CARD SETTINGS. The conventional method of regulating flat strip waste is adjustment of the front plate, as shown in Fig. 1, and the back plate. The usual limits for variation in plate settings are from 0.022 to 0.034 in. in American mill practice, whereas English and Continental mills often use a setting of 0.017 in. or closer. With a flat speed of approximately 3 in. per min., waste per flat will vary from 15 to 28 grains on medium production with the settings employed in this country. A closer setting, within limits, will give a lighter strip.

Card sliver cleanliness or purity is not always proportional to the weight of strips removed. A cloudy, neppy web can be delivered even though a heavy strip is being made. An analysis of flat strips will often show that increase in weight of strips consists mainly of good fiber and that only a small part of this increase is trash. Neps counts made on sliver and lap will prove that in many instances increasing the flat strips does not reduce neps, leaf, or seed fragments. Other card settings and adjustments are more important than plate settings in controlling web purity.

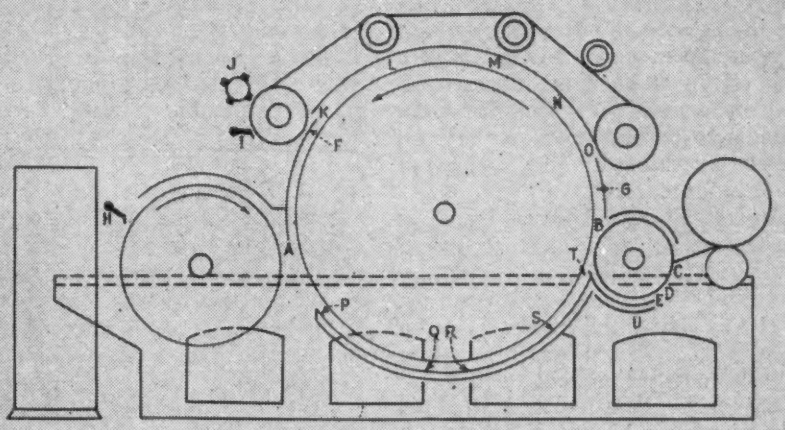
Fibers held by the cylinder wire first comes in contact with the lower edge of the back plate. The usual setting of this plate is 34 at the bottom and 29 at the top. The plate controls air currents, keeps fiber close to the cylinder, and prevents too free a contact between the fiber and wire on first flats at the top edge of the plate. The back-plate setting usually corresponds closely to the front-plate setting. The closer this back plate is set to the cylinder the lighter the card strip, within certain limits and conditions. These limits and conditions will be discussed later in this article.

WEIGHT OF CARD STRIPS. It can be shown that the back flats soon load up after coming in contact with stock held by the cylinder. Actual weighings of strips taken from a card with 45 flats in working position above the cylinder after it has been stopped indicated that the average weight of strips on all flats was 18 grains per flat. The first flats above the flat plate showed 12.5 grains per flat. This amount increased slightly on consecutive flats, until the eighth flat recorded a weight of 18 grains, which equalled the average weight on all 45 flats. No consistent increase was found beyond the eighth flat in weight of strips, although there was a slight darkening in the color of the removed strips. Individual strips varied in weight from a minimum of 12.5 grains to a maximum of 22 grains. The results indicated were obtained with the following settings: front plate, top 29, bottom 29; back plate, top 29, bottom 34; flats to cylinder 10 at all setting points.

TRANSFER OF FIBERS BETWEEN CYLINDER AND FLATS. It is generally assumed that there is a transfer of fibers back and forth between flat wire and cylinder wire. However, experiments made with fugitive dyed laps tend to prove that there is very little interchange of fibers between the two opposed wire surfaces. When a white lap was broken out at the feed roll and a red lap pieced in, the sliver showed almost immediately a pinkish tinge, and in a short time, the full red

Suggested Card Setting for Reducing Usable Fiber in Strips

DIAGRAM CODE	SETTING POINT	SETTINGS IN 1/1000 IN.
A	Doffer to cylinder	7
B	Lickerin to cylinder	7
C	Feed plate to lickerin	10 to 17
D	Top mote knife to lickerin	7
E	Bottom knife to lickerin	12
F	Front plate to cylinder	22
G	Back plate to cylinder	22 to 34
H	Doffer comb to doffer	22 to 34
I	Flat comb to flats	34 to 1/16 in.
J	Spiral flat brush	1/32 in. from foundation of wire
K	Flats to cylinder – front	10
L	Flats to cylinder – 2nd	10
M	Flats to cylinder – 3rd	10
N	Flats to cylinder – 4th	10
O	Flats to cylinder – 5th	10
P	Cylinder screen to cylinder – front	1/16 to 3/16 in.
Q	Cylinder screen to cylinder – 2nd	Full gage 34
R	Cylinder screen to cylinder – 3rd	Full gage 34
S	Cylinder screen to cylinder – 4th	Full gage 34
T	Lickerin screen to cylinder	22
U	Lickerin screen to lickerin	22



color of the new lap showed in the sliver. The strips combed from flats by the comb showed but a very slight tinge of pink until the flats which were at the back of the card when the red lap was pieced in had moved around to the flat comb. Then the full red color of the lap appeared.

Such results are true only with a normal setting of the front plate. A wider setting of the front plate showed a slight layer of red fibers immediately, which disappeared when the front-plate setting was reduced. This action seems to indicate that a wide setting of the plate permits removal of good fiber from the cylinder, but the influence of front-plate settings does not extend beyond three or four flats from top edge of the front plate.

The results of the experiments related explains why it is advisable to have the back and front plates set nearly alike in distance from the cylinder. If a wide setting is used on the back plate, it will permit the flats to load-up quickly with a heavy strip, but a close setting at the front plate can only reduce the amount of strips removed at the comb, and then by removing part of the waste already on the flat and depositing it on the cylinder. Conversely, a close setting on the back plate will reduce the amount of waste taken up by the flats, but a wide setting at the front plate will allow the removal of good fiber from cylinder to be deposited on the flats, thereby increasing the total amount of waste produced.

Amount of good fiber contained in the flat strips is of greater concern than is total amount of waste produced. The total waste percentage can be controlled within certain limits by plate settings, but little information is available regarding fiber length value of flat strips. Few recorded attempts have been made to reduce the amount of this good fiber.

Three percent of flat strips is not an excessive amount to remove if a large proportion of this waste is trash. Its removal will certainly improve the appearance of the sliver. But, 3% is too much to remove if from 60 to 75% of this is good fiber, and if its removal does not improve the cleanliness or appearance of the sliver. It only adds to the profits of the waste dealer.

Fiber analyses of strips taken from flats in working position on the bend show that good fiber varies from 72% on the first flat above the back plate to 65% on the front flat above the front plate. These figures corroborate previous findings that little additional fiber is picked up by the flats in their travels from back to front of card, but that a small amount of trash is picked up from the cylinder.

Deductions from data collected regarding waste and the action of flats and the setting of plates indicate that a reduction in the number of flats brought into position in a given time above the back plate tends to reduce both the amount and richness of the flat strip.

The standard speed of flats is about 3 in. per min., or close to 2 flats per min. being brought under the action of the flat comb. With an average weight of 18 grains per flat strip on a 10 lb. per hr. card production, flat strip waste would equal about 3%.

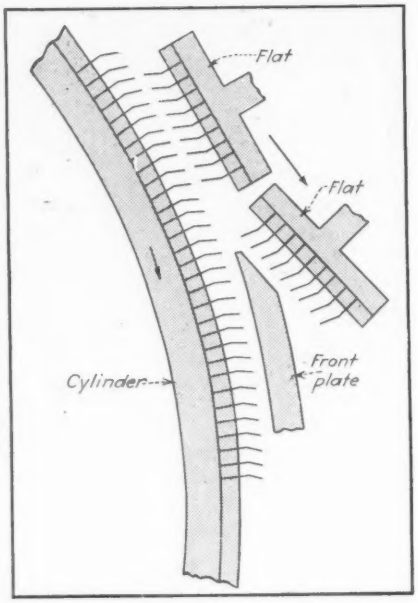


Fig. 1. Diagrammatic view showing relationship between front plate, flats, and cylinder. Flats should be set to the cylinder, assuming a 10/1000 in. setting as follows: Set flats to 10/1000 in. gage, remove this and make certain that a 12/1000 in. gage will not slide freely, then use an 8/1000 in. gage, making sure that the flats are clearing the cylinder. All card settings should be gone over twice, thus eliminating the possibility of any incorrect setting.

Following along the lines suggested, the speed of flats was reduced one-half or to about one flat per minute. Tests made at this speed soon showed that an excessively heavy strip would be made with the regular plate settings. Accordingly, the back plate was set 29 at bottom and 22 at top, while the front plate was set 22 both top and bottom, all other settings remaining the same.

The flat strips from this reduced flat speed and closer plate settings averaged 23 grains each and were much darker in color. The increased proportion of trash was plainly evident. This weight of strip was equivalent to a strip of 11½ grains under the former speed of two flats per minute. These settings brought the flat strip waste percentage down to about 2%. Fiber analysis of strips showed a reduction of good fiber, it being about 52%. This represents a reduction of 13% in good fiber from regular speeds and settings. The sum of these savings in waste made and per cent of good fiber saved was equivalent to 7 lb. of cotton per card per 80 hr. wk. No difference could be detected in the appearance of the web, and a nep count showed no loss in sliver quality.

CONCLUSIONS. The results obtained were short of the desired goal of reducing by one-half the amount of good fiber lost in flat strips, but provided a worth-while saving. Results of these tests showed that although the total amount of waste was reduced and the percentage of good fiber contained in this lessened waste was also reduced, yet the amount of trash contained in the waste remained practically the same.

These results should not be considered as final in attempts to reduce the amount of good fiber in flat strips. But, it is a step in the right direction. There are probably better ways of accomplishing this result than the method described. The reader's experience may suggest other changes in speeds and settings than those listed in the table that would make additional savings of good fiber.

Results of these tests and experiments indicate some possible changes in machine design. It is realized that the flats and cylinder have a straightening and combing action on the fibers in addition to removing trash, but this might be accomplished effectively with a reduced number of flats and a smaller cylinder. Cylinder speeds might be increased to equal or exceed the present peripheral speed. Front and back plates could be of more rigid construction to prevent buckling and permit more accurate setting and they might also have a vertical adjustment to bring the upper edges of the plates closer to the apex of the wedge where the flats and cylinder separate better to control the action of plates. A change in design might be made to provide automatic return of the removed strips to the back of the card for re-working. Same method might be developed to remove a large part of the trash usually found in flat strips which should never get any further than the licker-in.

Nu-Way Toe-Closing Method for Hosiery

Substitutes seaming for looping and permits higher output per operative

● To overcome the serious shortage of loopers, several of the leading manufacturers of seamless hosiery in the South have adopted the Nu-Way toe-closing method originally developed by G. T. Whitlock, of Whitlock Knitting Mills, Rutherfordton, N. C. The "Nu-Way" method of toe closing is accomplished by sewing the hose on any good overseaming machine. Although a sewed toe is not new—having been used by the Japanese in pre-war days for export, the "Nu-Way" method of folding and stitching makes a toe superior in fit and comfort to that obtained by many other toe-closing methods.

Among the advantages cited for the "Nu-Way" method are that the toe-closing operators can keep up with the knitters; more production per operator reduces the cost of toe closing from about 12 to 13c. per doz. for looping to around 5c. per doz., and the toe has an almost full-fashioned fit, with no uncomfortable seams or knots at the toe of the sock so as to cause discomfort to the wearer.

A sock with the toe closed by the Nu-Way method is illustrated in the headpiece of this story. To knit the "Nu-Way" toe, the mechanisms controlling the formation of the looped-type are so changed that a tube 3½ in. long is knit past the extension toe, as shown in Fig. 1. The tube can be knit in one-third the time it takes the knitting machine to form the conventional looped toe, which results in a 20 to 25% increase in production. It is stated that at least 24 hazards that may result in seconds during knitting of the conventional toe are eliminated. Next the toe is turned and folded so that when the toe is stitched and turned again, the seam is inside, and is a continuation of the bottom fold. This allows the seam to fall under the middle of the foot where no irritation can result.

In sewing the "Nu-Way" toe any conventional overseamer can be used. Inexperienced operators use a template (Fig. 1) to guide them in sewing the toe. However, after a short period of practice, an operator can sew correctly without using a template. The stitch should be set to 26 to 28 per in. so that a strong seam is made, and so that the tails can be cut close to the fabric. Previous methods of sewing toes made use of a coarse stitch, so as to get all possible production, and the result was a weak seam and long tails to sewing threads that rub the foot. The Nu-Way method is said to result in approximately 60% increase in production.

It is possible to produce either small, regular, short or long toes, depending on the type of hosiery or gage of fabric. The Nu-Way method was first developed in 1929. Recently, because of the shortage of loopers, Mr. Whitlock decided to license other manufacturers to use the process, and the method is now being used successfully in seamless hosiery mills making women's fine-gage hosiery and anklets, men's socks, and children's hose.

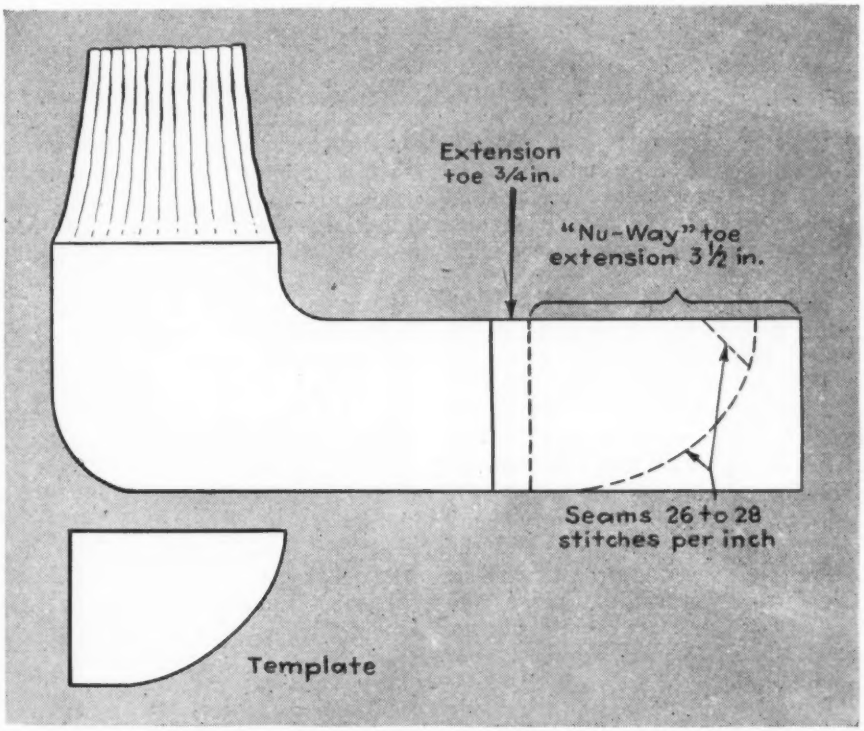


Fig. 1. Diagram of hose showing the toe before sewing and cutting, and the location of seams. Template for guiding the sewing machine operator is shown at lower left.

Woman-Power Helps Dixie to Run

Permits 144 hours on three shifts; unemployed girls in vicinity enlisted

By HARRY S. ANDERSON
Personnel director, Dixie Mercerizing Co. Lupton City, Tenn.

Map of territory covered by survey.

● Two girls leaning idly on the fence in front of a neatly painted house made only a slight impression on Neil Thomas at the time as he drove swiftly along the Tennessee highway and disappeared over the curving road.

But Mr. Thomas, assistant general manager of Dixie Mercerizing Co.'s Lupton City spinning mill, remembered that brief picture as he faced a serious labor shortage later in the month, and it kept recurring to him until he decided to do something about it. Why not bring those girls into the mill and train them to take the places of the men and boys being called every day to enter the armed forces? The idea persisted, and presently with road map and scale, a scheme was developed to tap in a systematic way this hitherto slighted reservoir of idle help.

The first step resulted in a map showing every adjoining town which did not already possess some industry that could utilize this unemployed labor. The larger cities were not included, but the small towns, the crossroad hamlets, the villages, were faithfully plotted.

Next an agent was selected. Considerable thought was given to this as the management realized that much depended on the wisdom, the judgment, and the personality of this representative. The choice fell on Clyde Abernathy—a barber by trade; an extrovert by nature—well-known and universally popular. He knew the country round about. He knew the towns and the cities. He knew the people. And so Clyde was given a map, a car, a tank full of gas, and last minute instructions. Neil Thomas sat back and awaited results.

Results were not long in beginning to show. Clyde began a systematic combing of the surrounding country. Every home where he learned that there was an unemployed girl, 16 or over, received a call. Leads came from friends in the towns, in the stores, in the barber shops, from tenants and farm owners. Girls interviewed gave him the names of their friends, and so the roll of prospects mounted.

He knew the mill and what it had to offer, and he was quick to size up the character, the stability, the adaptability of the girls whom he interviewed, generally and preferably in the presence of their parents. He was giving them an opportunity to learn a useful trade, to make good use of otherwise idle time, to earn a living wage while learning, and to be of real help in the war effort. To those showing proficiency, good pay was an early prospect.

Working into the rural communities around the various towns and villages, he visited hundreds of families, and before many days had passed the beauty parade began. No transportation was provided by the mill, each girl making her own arrangements to report to the mill at her convenience.

THE PROBLEM. Now the mill faced its major problem: How to care for this sudden influx of additional untrained help?

But, first, a word about the mill. Dixie Mercerizing Co.'s spinning mill at Lupton City normally employs 1,400 men and women. The mill has 60,000 spindles and makes a high quality yarn for the weaving and knitting trades. The village contains 211 houses, school, 2 churches, stores, hospital, civic center, athletic fields, swimming pool, gymnasium and all those things usually found in a modern, well kept-up industrial village. But there was no dormitory, no boarding house, for the rural contingent.

The problem was solved in an original manner. Good housekeepers, preferably those who had had some experience in keeping boarders, or those with special qualifications along this line, were selected and arrangements made with them to board, keep house for, and supervise the girls coming in. The mill arranged for the adjoining house (all the houses are 4-room type) to be used as a dormitory. Two double beds were installed in each of the 14×14-ft. rooms, making sleeping space for 16 girls to a house. Clothes cupboards were put in, and in the matron's home next door proper dining room, and extra kitchen furniture was installed. This was at the mill's expense, as was also the pay for a capable cook whose salary was fixed at $25 a week.

The matron receives from each girl $6 a week for room and board. Two hot meals a day are furnished, the girls buying their own lunch at the company restaurant in the mill when on duty.

The placing of the girls in the "dormitories" is carefully handled by the personnel director who makes every effort to form congenial groups. For ex-

ample, in one house there are 16 high school graduates. In other houses there are groups composed of girls who came from the same community and who came in together. In every instance the girls in one house work on the same shift.

THE REQUIREMENT. In interviewing the girls, Abernathy made no commitments for the mill, made no contracts; but it rarely happened that those to whom he talked and whom he sent in to the mill were not given the opportunity they desired. The only requirements are: Applicant must be 16 or over; must have had 6th grade school work; must be of good character. There are many war-brides among the girls; there are also older women, both married and single.

The personnel director interviews each applicant, and, in addition to assigning living quarters, places her in the line of work best suited to her ability. An occasional change is necessary, and demand for help in some particular department plays a part in the job assignment. But the prime object is to give the applicant a chance to make good.

All learners start off at 40¢ per hour. The normal work week, of course, is 40 hours with time-and-a-half for overtime, which frequently makes the wages $20.80 per week. As mentioned before, the girls pay $6.00 a week board and spend about $2.00 a week for lunches, leaving $12.80, or thereabouts as net weekly earning during the training period. This varies from a few weeks to two months. One girl went on full time at $40.00 a week, 56 hours, after three weeks training, and she had never seen the inside of a textile mill before this employment was given her. A married woman, Mrs. Cranfield, learned in three weeks, and was joined later by her husband. He is now in the card room and between them they earn over $300 monthly.

This mill formerly employed about 30% women. There are more than 50% women on the payroll today and the mill is using them in many tasks formerly assigned only to men. There are women on the cards, on the slubbers and fine frames, in the spinning room, on winders and twisters. There are women timekeepers. They are sweeping, and doffing, and the head of the supply room is Mrs. Benie Campbell, who knows her stock and knows her job. She has had four years experience as timekeeper and on winders, and is now doing a man's job every day.

START IN THIRD SHIFT. Most of the girls coming in are assigned to the third shift. This shift goes on at 10 p.m. and off at 6 a.m. After becoming accustomed to getting their rest between the hours of 7 a.m. and 2 or 3 p.m., the girls seem to like this arrangement which gives them the afternoon and early evening free. They can then take part in various activities such as soft-ball games, swimming, basketball, games and dancing, which are arranged and supervised by Mrs. Cordell Craig, supervisor. Mrs. Craig has arranged with the Red Cross to give swimming lessons to the girls every afternoon at 4 p.m. and the pool is reserved at that time for the purpose.

It has been observed that out of every 25 girls applying for jobs, 7 or 8 are early casualties. Home-sickness gets them. This perhaps might be expected since 90% of them have never worked before and many have never ventured so far from their homes. Strangely enough of those giving up and going home, many come back the second time, and, when they do, they generally stick. But the turn-over is high. To keep the girls satisfied, they are permitted to visit their homes each week, if they so desire. They all live within 75 miles of the plant and most of them much nearer. The day at home is usually Sunday as the mill operates only six days a week.

The plan has now been in operation a little over a year. Altogether the net results have been most encouraging. With 1,400 names on the payroll, Neil Thomas has no worries as to labor shortage and can now ride over his pleasant Tennessee hills with an easy mind.

Clyde Abernathy and his station wagon in front of his Lupton City home.

"For what we are about to receive . . .". Learners gather for lunch.

Better Quill-Room Management

Key to efficient operation is skillful planning and strict control of details

BY ARTHUR C. WAYMAN

• Efficient operation of a quilling room calls for much planning and foresight on the part of the overseer. Well-wound quills must be delivered to the weave room in sufficient quantities to keep the looms in operation, but not in excessive amounts to tie-up a large number of quills for an unnecessary length of time. Such factors as yarn supply and demand must be constantly checked. An adequate system of quill inspection should be established. Yarn cleanliness, quilling tension, the matter of yarn waste and over-tints, and even humidity in the quilling room must be given careful consideration if the quilling department is to function efficiently and operate at minimum operation costs. In addition to careful planning, close cooperation between the weave-room overseer and the quilling room overseer is required. Following are suggestions for raising quilling-room efficiency.

PLANNING. A costly mistake of many quilling overseers is to discontinue the planning of lot orders and prepare a large stock of quills ahead of requirements.

Another source of added expense is when the weaving department mounts looms of a new construction very rapidly, and for any reason the quilling department cannot keep up with the demand for filling. This condition lasts until the quillers have placed into operation additional spindles.

Records such as shown in Table I should be prepared each day setting forth the needs of the weaving department. The number of quilling spindles, as indicated by Table I, may have to be increased or reduced daily to supply the current needs of the weave room. This record should be checked each morning with the weaving department. Number of spindles required per loom must be calculated, and the figure will vary for different fabrics being woven. Assume that the looms are operating at 92% efficiency and the quilling department at 75% efficiency. Yards of filling required per loom per minute = (Reed width × Picks per min. × 0.92) + 36. The yards copped per minute per spindle = (Yd. on quill × 0.75) + Quilling time in min. The number of spindles necessary to run each loom = Yd. of filling per loom per min. ÷ Yd. of filling copped per min. Total number of spindles is obtained by multiplying the number of looms running by the number of spindles necessary to supply each loom. Number of spindles running must always equal or exceed slightly the total number of spindles required.

YARN SUPPLY. Constant check over the stock to be quilled, as well as the yarn already quilled, must be maintained. If the supply of cops quilled by the department runs above a 48-hr. reserve for the looms, proper steps must be taken at once to prevent idle spindles and, later, idle looms if the supply is depleted. On the other hand, it is possible that the looms may not consume the calculated amount of yarn because they are not operating at peak efficiency. In this event, a reserve stock of quilled material will accumulate and tie-up numerous quills and filling trays. Such a condition should be guarded against, because if the quilling or throwing has been defective, it will usually be discovered during weaving or in the woven cloth. Large losses may be incurred before the weaving department issues a warning. Therefore, too large a quill supply is just as dangerous as one not large enough. A daily check-up will go a long way toward minimizing such confusion.

A similar situation arises when lot changes are required. If a certain lot has to be discontinued, for some reason or another, it is better to weave a few more pieces of fabric to dispose of excess quills than it is to have the yarn accumulate as an odd lot. But enough yarn of the new lot must be available to take the place of the old lot if such a change is to be made smoothly and without loom stoppages.

QUILL INSPECTION. Poor quills will sometimes be made in a quilling department. Some will have concave or convex tapers; others, bad traverses; some, damaged packages or bunches, and even fuzzy yarn or several other defects—all of which result in weaving trouble. Therefore, many mills require a regular quill inspection. Good lots receive a quick examination on the quill tray, whereas troublesome lots are examined quill for quill.

CLEANLINESS. Quills, bobbins, or cones should not be picked up or held in such a manner that the hand is in contact with the yarn. Doing so may cause finger marks. Handle the quills by the tips, bobbins by the heads, and cones by the cardboard core.

Machines should be cleaned at the end of each shift. Loose waste cannot be permitted, as short pieces are often picked up by the yarn during quilling and wound onto the quill. Waste wound on the quill along with yarn results in lumps and slubs in the woven goods.

When tying knots, and mechanical knotters are not used, be certain that operators wash their hands frequently. Otherwise, they will cause ugly stains

to appear in the filling. This also happens if the operator lets the yarn run through his fingers when starting or checking the tension with dirty hands.

TENSIONS. Tensions should be adjusted in proportion to the type of yarn and according to denier. Table II is based upon a No. 5 traverse wheel with a three-stroke machine, speed 2000 to 2200 r.p.m. This table indicates suitable tensions for various deniers. Tensions must be checked spindle for spindle every shift.

A quill wound too hard can cause filling strip-backs and shiners; and a package which is too soft may slough off, thus causing filling lumps and snarls, broken picks, and loom stops.

WASTE. Waste is a costly item in quilling. Each operator should, at the end of the shift, turn over all accumulated waste to the foreman. Throwing of waste on the floor should not be permitted. Considering the fact that the allowable waste factor usually does not exceed 2%, which includes that made in weaving, any extra waste in quilling is the beginning of red figures in the accounting department.

Bunches should not be built with greater yardage than is necessary to give the loom a safe margin if the filling feeler fails to make contact the first time. That is, 5 to 6 yd. should be sufficient or possibly even less yardage is permissible, depending upon reed width of the loom. The empty quills returned by the weaver should have no less than ½-yd. of yarn remaining on the bunch. This margin is necessary to prevent loose picks and drag-ins when the shuttles or quills change.

OVER-TINTS. With several different types of yarns available, the throwing department may have difficulty in finding sufficient tints to distinguish one lot from another. When it is considered that there are yarns commonly used in 55, 75, 100, 120, 150 and 200 den., and each size is available in dull, semi-dull, and bright finishes, and with many different filament counts of identical deniers, finding a tint for each yarn is a problem if many different yarns are handled at once. Yarns of different manufacturers frequently differ their dyeing properties. Also, a dozen or more different twists, such as natural, voile, and crepe are tinted. To tint each of these variations with a contrasting color so it does not conflict with another lot is simply impossible. Various types of combination yarns in which the white acetate hides the strong viscose tints complicates the problem still further.

At times, therefore, it is necessary to over-tint closely related colors in quilling. Various systems can be used —single, double, or triple rings consisting of one or more different colors; spirals with one or two shades; or just a plain stripe for the whole length of the package. Rings and spirals should start as close to the bunch as possible so that if a short cop is returned by the weaving department it does not lose its identity. Tints and brushes should be tested weekly.

As a safety measure, take half a yard of raw goods and sprinkle some tint onto the goods from every tint reservoir. At the same time examine the brush. After completing this operation, soak the goods in lukewarm water for 10 min. Then rinse in clear water. If there are tint marks left, check the guilty machine or operator immediately. In large mills, where the quilling department is of considerable size, it is a good policy to mark the machine or operator's number on the raw goods with the tint brush. For example, if all the different tints except No. 7 disappear, it is an easy matter to trace it to machine No. 7.

Table II. Yarn tensions in grams for No. 5 traverse wheel on quillers.

Plain Acetate & Viscose		*Crepe Twist*		*Combinations*	
Den.	*G.*	*Den.*	*G.*	*Den.*	*G.*
55	30	50	40	75/75	55
75	35	75	45	100/75	60
100	40	100	50	100/100	65
120	45	150	60	150/75	70
150	50	200	70	150/100	75
200	60			150/150	75
300	70				

Table I. Weave room quill requirements.

Quality	*Lot No.*	*Description*	*Looms Running*	*Spindles per Loom*	*Total Spindles Needed*	*Spindles Running*
10001	00463	100/40 Viscose Crepe, 60 t.p.i. 100/28 Dull Acetate } 8 t.p.i.	75	1.84	138	138

HUMIDITY. Both temperature and relative humidity should be kept at least 5% below that of the weave room. Weave room humidity ranges between 55 to 60% r.h.

Most mills steam the yarn for a short period before releasing it to the looms. This helps to kill excess liveliness of the yarn. Although the throwing mill sets the twist before sending the yarn to the weave room, the friction and tension applied to the yarn during quilling will revive the twist. In some instances the yarn is so lively that it virtually "flies" off the cop.

A conditioning period of 12 to 18 min. with a dry-bulb reading of 135° F., and wet bulb at 125° F. will set the twist sufficiently for good weaving. These temperatures produce a relative humidity of approximately 75%. The time of conditioning may have to be varied, according to the type of yarn. A few experiments will show how long a time is necessary.

To prevent the yarn from being over-steamed, which results in soft quills, or under-steamed, which leaves the yarn still lively, it is advisable to check the instruments at least once every 30 days. The wet-bulb check is accomplished as follows: Insert the bulb in a pail of hot water alongside an ordinary mercury thermometer. Whatever this thermometer reads should be duplicated on the wet-bulb thermometer.

Insofar as the temperature within the steam box is concerned, the simplest way to check this is to suspend a thermometer from the ceiling; go through the regular steaming procedure; and, after expiration of a given time, rush into box with a flashlight and obtain a quick reading.

LOAD ASSIGNMENT. The number of spindles that can be run by each operator depends upon the time required to fill one quill. Thus, a basic figure, for example, is as follows:

Quilling Time	*Spindle Load*
2 to 2½ min.	15 spindles
30 to 31 min.	200 spindles

The longer it takes to fill a quill the greater is the number of spindles one operator can handle. Therefore, the following factors should be considered. When setting spindle loads in an effort to obtain lower quilling costs: (1) length of quill, (2) diameter of package, and (3) wind (the higher the wind the larger is the amount of yarn that can be wound on a quill). *A subsequent article will discuss the prevention of defects and other measures further to increase quilling department efficiency.*—EDITOR

PART THREE

Manufacture of Sample Fabrics

By THOMAS O. OTT, Jr.
Southern Editor, Textile World

Previous articles in this series on the subject of Styling and Designing Consumer Fabrics for Post-War Markets (TEXTILE WORLD, September and October, 1943) outlined the changes needed in manufacturing and selling organizations before a company enters the consumer fabric field and discussed the place and functions of the stylist and the designer. Subsequent articles will deal with the designing of specific types of fabrics.

● Production of samples, whether delegated to the designer or to a special supervisor, requires speedy manufacture and involves a great deal of analytical and detail work. The designer should furnish complete instructions to the head of the sample-manufacturing operations, who in turn places orders in each mill department for the sample work to be done. Instructions for each department should be made in duplicate. These instructions contain work orders for a department, such as fibers to be used, color and dyes required, hank roving, yarn numbers, twists, put-ups, length of set and number of ends and section beams, size formula and type of loom beams, drawing-in draft and chain draft, reed and picks per inch. One copy is sent to the department overseer, and the other is kept in a file folder by the sample supervisor. If finishing must be done outside the organization, the sample production supervisor's instructions should be included in a letter to the finisher at the time the sample roll is shipped.

It is advisable for the sample supervisor to develop simple instruction cards for each department that can be moved through the mill with a sample order. One such card can cover the entire range of operations in the average fancy goods mill. A suitable card is shown in Fig. 1. All instructions, master colors, and gray and finished sample swatches should be filed in a folder containing the sample designation. Sample numbers at the mill should be the same as those assigned by the designer, and each number should be retained until a definite mill style is assigned to the first commercial production.

Numerous trials are required before a sample order is made up in the mill so that the stylist and designer can see the effects of color, pattern, and construction. These head-ends of a yard or so, can be made by drawing in the new pattern on a stock warp and running in stock fillings. Stock warp should be selected to conform to the yarn number and color specified for the sample. However, if only the construction is to be studied, any color of yarn will do. Trials can be woven to any width. If possible, the patterns should be held intact in the loom until comments or approvals are received from the stylist or designer. This procedure will save a great deal of money and effort, as it prevents many expensive re-runs of samples.

After the final approval of head-ends, the sample supervisor issues the detailed orders for production of samples to each department. Since from one to twenty or more samples may be on order at a time, a daily check is required by the sample supervisor to be sure the sample production is moving as quickly as possible through each department. A regular production schedule is required in plants making large seasonal lines; and promises and production time, estimated and actual, in each department should be recorded as a check. A form which is suitable for this purpose is shown in Fig. 2. The tendency of the average overseer is to let samples lag in the mill. If machines can be removed from production, and set aside just for samples, the regular productive processes will have less interference, and sample manufacture can be speeded up. Some mills have done this to advantage, whereas others prefer to use regular equipment.

Orders for the sample should be large enough to supply all requirements on the first run; otherwise several additional runs may be necessary on each pattern to get sufficient cloth. Samples for reference files, salesmen, swatches for customers, and several sample rolls to send out to customers should be included. This will probably require from 300 to 500 yd. of cloth. This is less expensive than making several re-runs of the same pattern to secure enough yardage.

SAMPLE ESTIMATE AND FOLLOW-UP SHEET

Sample No.	Type Fabric	Request Rec'd	Design and Layout	✓	Completed	Sample Order Placed	Dyeing	✓	Completed	Carding	✓	Completed	Spinning	✓	Completed	Warp Prep.	✓	Completed	Drawing and Weaving	✓	Completed	Inspection and Finishing	✓	Returned by Finisher	Approval	✓	Approval Rec'd	Promised	✓	Shipped	Remarks
2500	Drap.	1-1	1-5	✓	1-6	1-8	✓	1-11	✓	1-13	✓	1-15	✓	1-20	✓	1-22	✓	1-26	✓	1-30	✓										
2501	"	1-4	1-7	✓	1-6	1-8	✓	1-11	✓	1-13	✓	1-15	✓	1-20	✓	1-29	✓	2-3	✓	2-5	✓										
3200	Uph.	1-8	1-13	1-15	1-16	1-16	1-19	1-19	1-22	1-21	1-25	1-23	1-27	1-29	✓	2-6	✓	2-11	2-16	2-13	2-16										Designer and approval late
3201	"	1-9	1-14	✓	1-15	1-18	✓	1-21	✓	1-23	✓	1-26	✓	2-1	✓	2-9	✓	2-13	2-16	2-16	✓										Approval late
4200	Suit.	1-10	1-15	1-18	1-18	1-18	1-21	1-21	1-25	1-23	1-27	1-26	1-27	2-1	✓	2-9	✓	2-13	✓	2-16	✓										Designer late, time made up
4201	"	1-11	1-16	✓	1-18	1-20	✓	1-23	✓	1-26	✓	1-28	✓	2-3	✓	2-11	✓	2-16	✓	2-19	✓										

ALLOWED TIME IN DAYS

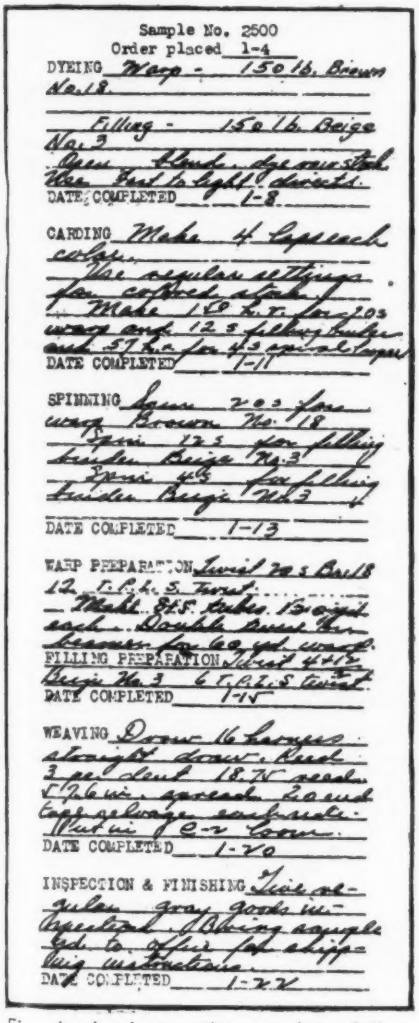
	Min.	Max.		Min.	Max.
Design and Layout	3	5	Drawing & Weaving	5	5
Dyeing	2	3	Inspect. & Finishing	1	7
Carding	3	3	Approval	4	4
Spinning	2	2	Sun. & Holidays	2	5
Warp Prep.	2	2	*Total*	24	36

Check sample progress each day.

Use (✓) when meeting schedule.

Use actual date complete each operation when sample is delayed.

Fig. 2. Schedules of samples on order, etc.



Sample No. 2500
Order placed 1-4

DYEING Warp - 150 lb. Brown No. 18
Filling - 150 lb. Beige No. 3
Open Hank - dye on steel Use Fast to Light 6 dyestuffs
DATE COMPLETED 1-8

CARDING Make 4 Lapsench calps. Use regular settings for colored stock. Make 150 lbs. for 20s warp and 125 filling Beige and 57 lbs. for 45 spiral laps
DATE COMPLETED 1-11

SPINNING Spun 20s for warp Brown No. 18
Spun 12s for filling Beige No. 3
Spun 45 for filling Beige No. 3
DATE COMPLETED 1-13

WARP PREPARATION Twist 20s 2 ply 12 T.P.I. S. Twist
Make 845 tubes. 15 oz. each. Double Bunch beamer for 60 yd. warp
FILLING PREPARATION Twist 45/2 Beige No. 3 6 T.P.I. S. Twist
DATE COMPLETED 1-15

WEAVING Draw 16 harness straight draw. Reed 3 per dent 18 N reed. 576 ends. Spread 20 and taps selvage each side. Weft in 2-2 Loom.
DATE COMPLETED 1-20

INSPECTION & FINISHING Twist on Beige gray goods in Napper. Bring napped goods to office for shipping instructions.
DATE COMPLETED 1-22

Fig. 1. An instruction card to follow each sample order through the mill.

KEEPING RECORDS. Master samples must be prepared by the sample supervisors and distributed to the stylist, designer, sales and cost departments, and the mill reference file. The mill requires detailed records of all manufacturing data, and these should be worked up on specification sheets and included in the mill reference file. Additional notes, comments, and recommendations can be included.

Finishing samples away from the mill requires a record of sample shipments. This can be included on regular departmental shipping records. Full instructions should be issued by the sample supervisor to the cloth room overseers as to put-up and destination of samples. A letter of instructions with a request for a delivery promise should be forwarded to the finisher. The sample supervisor must exercise care to be sure the fabric roll is properly identified so that the finisher can find it among the many samples he has for other mills.

Before the sample is processed the finisher should quote a price on a standard run. Often the finishing can be changed to get a desired result at a lower cost. When the sample has been processed, the finisher returns a head-end for approval before shipping the roll. The sample supervisor can make outside contacts by telephone in order to speed up approvals and processing; and, since the time factor in producing samples is of first importance, any reasonable speed-up is usually justified. He can consult the stylist by telephone or telegraph on price or shade; sample approval can be expedited by air express.

STARTING PRODUCTION. Entering the new fabric in production involves the issuance of full production specifications by the sample supervisor to the superintendent. He should take a complete file of specification data with master sample to the superintendent and discuss his findings frankly. The supervisor must have authority to turn down any sample that does not meet profitable manufacturing requirements, and he should do this before turning it over to the mill for production. He should be free to discuss samples with the line organization at any time to check his sample work on practicability. If, however, he has passed on the fabric, and is ready to put it in production, any disagreement with the superintendent about the sample should be settled before production is attempted.

If the fabric is put in production with some doubt in the mind of those who are to make it, the sample supervisor should check the first order through the mill to be sure the instructions and methods he has recommended are being followed, and that the order gets a fair trial. In this check, he should feel free to make suggestions and changes that can give a satisfactory fabric. These changes must be made only with the approval of the stylist and superintendent so all "kinks" in the manufacture of a new product can be settled without friction.

Cost of producing samples should be checked at intervals. This can take the form of a spot check, as complete cost records may be too involved and expensive to obtain. Isolating the sample production machinery and labor from the productive equipment makes cost determinations easier. Manufacturing costs of samples generally average at least three times that of the regular mill production. Some of the cost is absorbed by the customer in the purchase of a sample roll; but, on the whole, most of the cost is borne by the mill as an added operating expense. Cost of samples can be put in as an overhead item, allowing the regular cost records to reflect the performance of each department.

MANUAL OF MILITARY FABRICS

Part X—Dyed Numbered Duck—Type II

Processing details for vat-dyed cotton duck and fire, water, and weather-resistant finish covered by Specifications J. Q. D. 226B and 242.

To meet the need by textile mills for complete data on gray constructions, yarn organizations, weaving and finishing of fabrics required in large quantities for military use, TEXTILE WORLD, with the approval of officers of the Quartermaster Corps, began publication in the February issue of a Manual of Military Fabrics. The mill organizations and other manufacturing and processing data were furnished through the cooperation of textile mills which are producing these fabrics under Government contract. It is recognized that other plants having different types of equipment will have to make some modifications in the organizations, formulas, and procedures presented. Accordingly, these data should be regarded not as "standards" which must be followed, but as guides to the more efficient production of this fabric. Parts previously published are as follows: Part I, 5-oz. Poplin Type II, P.Q.D. No. 1, February; Part II, 6-oz. Cotton Twill, Army Specification 6-311, March; Part III, 8.2-oz. Cotton Twill, Type I, Army Specification, 6-201B, April; Part IV, 8.2-oz. Cotton Twill, Type II, Army Specification 6-201B, May; Part V, 8.5-oz. Herringbone Twill, Army Specification 6-261, June; Part VI, 8.2-oz. Cotton Twill, Type IV, Army Specification 6-201B, July; Part VII, 32-oz. Melton, Army Specification No. 8-53-A, August; Part VIII, 9-oz. Sateen, Army Specification, P.Q.D. 245D, September; Part IX, No. 6 Numbered Duck-Type I, Army Specification J.Q.D. No. 208C, October.

● Numbered cotton duck, Type I (in the gray) when dyed and finished is known as Type II. The No. 6 duck, Type I for which detailed specifications were given in Part IX, Manual of Military Fabrics, TEXTILE WORLD, October, 1943, is dyed and finished in one of a number of ways, depending upon the end use of the fabric—such as for tents, tarpaulins, leggings, bags, etc. Dyeings have been made with both vat and mineral colors; and fire, water, mildew and weather-resistant finishes have been applied. In addition, some ducks for tents and other purposes have been printed in camouflage colors and patterns. Accompanying is a brief abstract of the finishing specifications J.Q.D. 226B, and J.Q.D. No. 242, together with dyeing and finishing details on No. 6 cotton duck not given in the specifications.

ABSTRACT OF SPECIFICATION

(J. Q. D. 226B)

Preparation: Duck containing size shall be thoroughly desized and scoured before dyeing or processed with suitable penetrating agents.

Dyeing: No. 10 duck and heavier ducks and lighter cloths over 56 in. wide dyed on the jig are acceptable, provided good penetration of the dye and an even solid appearance are obtained.

Color: The color shall be as given in invitation for bids.

Water-Repellent Finish: Unless otherwise specified the goods shall have a highly water-repellent finish. Finished fabrics shall have a minimum hydrostatic resistance as follows: No. 6 duck, 35 cm. Spray rating shall not be less than 90 plus. When specified the finished duck shall have a mildew-resistant finish.

ABSTRACT OF SPECIFICATION

(J. Q. D. 242)

Type and Grade: Fire, water, and weather-resistant duck shall be one type and one grade.

General Requirements: The untreated materials shall conform to the requirements of the applicable specification.

Detailed Requirements: Treated duck shall be approximately as flexible as the untreated fabrics; with no marked increase in stiffness after exposure to the weathering test; breaking strength shall not be less than 8% higher than the duck in the gray. *Resistance to High and Low Temperature*—Treated duck shall show no apparent decrease in flexibility after being subjected to a high temperature; and shall also have a fair degree of flexibility when subjected to a low temperature. Weight of the finished duck shall be the gray or desized weight plus an allowance for the treatment as follows: Over 21 oz. per sq. yd., 40%. *Water Permeability*—Finished material shall be tested in accordance with the methods outlined in J. Q. D. 242. *Fire Resistance*—Fabric shall be tested by method given in this specification, and shall be free from objectionable odors, and toxic materials. *Stability to Water*—No decrease in specification requirement is allowed when fabric is immersed in mildly flowing water.

Dyeing Details

Scouring or Wetting Out

1. Inspect cloth in gray.
2. Sew pieces end to end using flat butted seams.
3. Desize with suitable enzime on range or jig if cloth contains starch.
4. Wash on range or jig in open width.
5. Boil out on semi-continuous, continuous jig, or by pad procedure. A typical boil-out or scouring formula for duck is 6° to 12° Tw. caustic soda for 4 hr.
6. Rinse and neutralize.
7. Wind on rolls for dyeing.

Duck that does not require desizing can be processed with the use of suitable penetrating agents without scouring providing the requirements as to penetration, fastness and general appearance are met. One suitable method is to pad the duck direct from the bale through a solution of 4 oz. of one of the synthetic wetting agents per gallon of liquor, and dry. Pad twice through the vat dye pigment dispersion and complete dyeing by standard procedure given herein for an efficient vat dyeing process for No. 6 duck.

Dyeing

Dye to approved shade, sample of which can be obtained from the Jeffersonville Quartermaster Depot, with vat colors by pigment-pad method.

Following is approximate formula for producing a required shade:

Dye	Oz. Per Gal.
Vat Khaki 2G paste (Pr. 122)	7.3
Vat Olive R paste (C.I. 1150)	5.3
Vat Olive Green BN paste	0.6

1. Pad the prepared duck one run on a 3-bowl padder or two runs on a 2-bowl padder through a highly dispersed vat dye suspension. (The penetration of the dye into the duck is greatly dependent upon the efficiency of this padding operation. Use large-diameter pad rollers of the correct composition at 5 to 10 tons pressure to get the best results.)

2. Transfer the wet padded rolls to the jig and run 6 ends at 140° F. through a dyebath prepared as follows:

Caustic soda	10 lb.
Hydrosulphite	6 lb.
Common salt	30 lb.
Water to make	100 gal.

3. Rinse 4 ends in running cold water.
4. Rinse 2 ends in running warm water.
5. Oxidize 4 ends at 140° F. in bath containing:

Hydrogen peroxide (100 vol.)	2 qt.
Acetic acid (56%)	1½ gal.
Water to make	50 gal.

6. Rinse 2 ends in running cold water.
7. Aftertreat 6 ends in gently boiling bath containing:

Soda ash	3 lb.
Soap	3 lb.
Solution	100 gal.

8. Rinse 6 ends in running warm water.
9. Shell up at room temperature through bath containing:

Acetic Acid (56%)	2 qt.
Water to make	100 gal.

10. Finish with fire, water, and weather-resistant compounds according to the recommended procedure for the specific product used.

Duck can also be vat dyed by continuous-range methods. The range must be ruggedly built, with large-diameter squeeze rolls which operate under heavy pressure. Reduction boxes should be 2,000 to 3,000 gal. capacity.

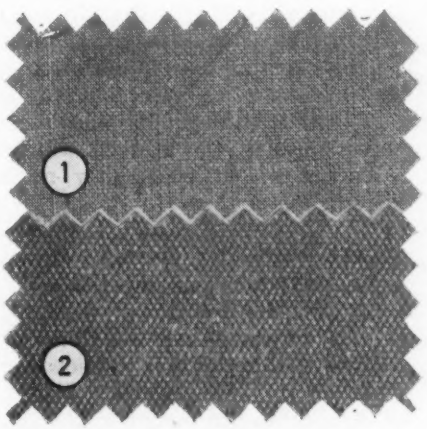
The duck is padded through highly dispersed vat dye liquor. It can then be dried in a roller hot flue, and entered into the reduction vats or a reduction padder placed between roller hot flue and the reduction vats. In another method, the pigment padded duck is not dried, but is entered directly into the reduction vats. In still another method the duck is padded through a reduced dyebath instead of a pigment dispersion.

Notes: The reduction and fixation of the leuco vat dyes on the fiber depends upon the selection of the correct caustic soda and hydrosulphite concentrations and the correct temperature for the specific dye formula. The rate of exhaust of the dyes is usually very rapid, and the rate of diffusion into the fiber is extremely slow and no advantage is gained by prolonging the dyeing time excessively. Six ends on the jig are ample. Close reproduction of the shade from roll to roll depends upon the close control of the chemical concentration and temperature, particularly of the latter when sensitive dyes, such as Vat Khaki 2G, are a component of the formula. If the finished dyeing is to show a minimum sulphur content, the dyeing should be well rinsed before undertaking chemical oxidation. Duck dyed with Vat Khaki 2G must be soured before soaping, and care must be exercised that the oxidation occurs before or simultaneously with the souring, rather than after the souring operation, in order to secure the true end-point shade, and to facilitate reproduction of the shade. To produce a dyeing with the maximum fastness, it is imperative to aftertreat the dyeings for a sufficient length of time at the boil in a bath containing soap and soda ash, or other equally satisfactory agents.

Finishing Details

Water-Repellent Finishes

In order to aid in the application of water-repellent finishes, particularly



1. Shelter-tent duck with water-repellent finish.

2. Duck with flameproof, water-repellent, and mildew-resistant finish.

those of the wax-emulsion type, and to facilitate the retention of a high amount of wax, it is usually desirable for the duck to possess a pH of not over 7 when it is ready to process. Before the finish is applied, the dyed goods are dried.

There are several commercial water repellents available consisting of staple paraffin wax emulsion and aluminum salt, the choice of which depends upon the finish and conditions in the plant. To apply, pass the duck through a padder containing a 3 to 4% water-repellent solution, semi-dry on cylinders and tenter frame to width. By using hot air circulation, the heating performances of the frame can be increased and higher speeds obtained. Normally, the speed would be approximately 1000 yd. per hr. for No. 6 Duck.

Wax emulsion for water-repellency is prepared as needed by adding a mixture of melted paraffin wax, dark petroleum, and stearic acid to a solution of ammonia with agitation. The resulting emulsion must be used immediately, as the stability is low. Recovery of stability is sometimes possible by addition of ammonia and reheating while solution is under severe agitation. The material is padded through the above solution as outlined for commercial water-repellents.

Water-Repellent and Mildewproof Finish

This process is identical with the plain water-repellent finish, except for the addition of a mildew inhibitor. Several of these are being used, and the impregnating solution is adapted to the chemical and physical characteristics of the mildew inhibitor and the specification requirements. The most common and widely used inhibitors are:

Copper, oleate or stearate used in the quantity specified by dissolving in the paraffin wax at the time of melting the wax prior to emulsification as for the preparation of the water-repellent wax emulsion.

Sodium pentachlorophenate is dissolved in a suitable solvent and added to the paraffin melt. Emulsification is somewhat difficult and may require additional ammonia.

Mercury compounds, such as phenyl mercury acetator oleate, which are added to the water phase of the emulsion, and emulsification carried out as outlined above. They may also be added to some commercial water repellents. Several water-repellent compounds now on market contain mildew inhibitors, and their use is identical with plain water-repellents.

Fire, Water, and Weather-Resistant Finish

The most common process is the dip or impregnation method accomplished by passing the material through a solution containing approved retardants in solution with a film-forming resin to which a mildew inhibitor has been added. One solution used contains approximately 50% aromatic or aliphatic solvents. After passing through an immersion tank, the material passes between sharp Swedish steel doctor blades which scrape off the excess solution, so that remaining in the fabric should be between 30 and 50% solids based on the initial weight of the fabric processed. The speed of the material processed depends upon the equipment used and the type of material processed. Finished fabrics must not contain more than 1% residual solvents.

Calculating Grease Weight

Home-made slide rule used in blanket mill can be adapted to other purposes

By GEORGE WAKEFIELD

● To meet requirements of retailers and consumers, it is customary to produce blankets and similar items in a variety of sizes. These products are generally cut to size after the piece has been finished; hence, careful control of grease weight and finished weight is necessary. Calculations are usually based on the desired weight of the blanket or other product, and the percher must check to make certain that the blanket as woven and finished is neither too light nor too heavy. To facilitate these calculations a slide rule was developed which is simple to operate and is sufficient for all practical purposes. Although this slide rule described is intended for blankets, similar slide rules can be constructed for other uses about a finishing plant involving the calculation of values related to shrinkage.

It is not at all unusual for a mill to run many different sizes and weights of blankets, and when it is considered that each of these may be made in a wide selection of designs, qualities, and finishes, one readily comprehends that in actual practice many kinds of blankets are simultaneously in process of manufacture.

When the blankets come off the loom, they are taken to the perch room where they are counted and the cut or piece is weighed. The warp number, the cut or piece number, the loom number, the number of blankets in the cut or piece, the grease length per blanket, the grease weight of the whole cut and per blanket, and other relevant data are all entered in the percher's book for record purposes and for the payment of wages if the weavers are on piece work. The total weight of the cut or piece is divided by the number of blankets in the cut in order to obtain the weight per blankets in the grease. This weight must be given to the weaving foreman in order that he may know whether he is weaving heavy or light pieces. The best way of so indicating is to mark the piece ticket in red if piece is heavy, and in blue if the piece is light. Weight of pieces must be such that, after deducting the losses during finishing, the blankets will be of correct weight when they reach the warehouse.

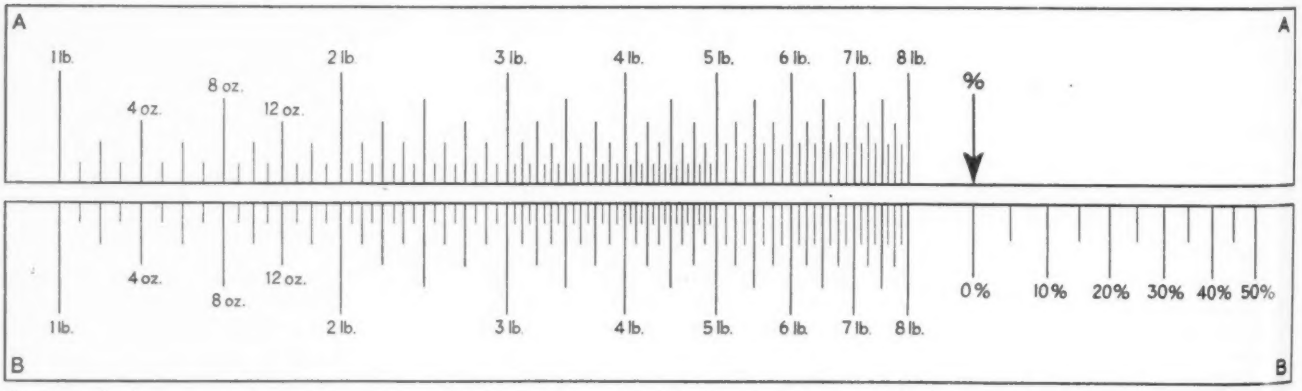
GREASE WEIGHTS. Because various qualities of fabrics may experience different percentage losses in finishing, and this loss may be anything from 5% to 30%, the percher has to know the weight in the grease which will give the desired finished weight of blanket, allowing for various losses. For example, suppose blankets to finish 2½ lb., 3 lb., and 3½ lb. are being manufactured, each in three different qualities with losses of 15%, 20%, and 25% respectively. Each of these types of blankets would have three different percentage losses; hence, nine calculations would have to be made.

To facilitate these calculations, the slide rule, shown in Fig. 1, was constructed and given to the percher. Column *A* indicates the finished weight of blankets, and Column *B* shows the grease weight for any particular percentage loss. Any given percentage loss, shown at the top of Column *B*, is set opposite the arrow and the percentage sign at the top of Column *A*. It is possible to then read off on Column *B* the grease weight of any blanket shown in Column *A* for that particular percentage loss for which the slide is set.

For example, assume a 15% loss. Set the mark 15% at the top of Column *B* on a level with the % mark at the top of Column *A* and read the grease weights in Column *B* as follows: A 2½ lb. blanket requires a grease weight of 2 lb. 15 oz., whereas a 3½ lb. blanket requires a grease weight of 4 lb. 2 oz.

If the loss is 20% the procedure would be similar. Set the 20% mark on Column *B* opposite the % mark in Column *A* and read as follows: A 2½ lb. blanket requires a grease weight of 3 lb. 2 oz., whereas a 3½ lb. blanket requires a grease weight of 4 lb. 6 oz.

This slide has greatly eased the work of the percher. Moreover, there is little likelihood of error through arithmetical slips in calculating when the percher uses such a rule.



Illustrated above are *A* and *B* scales suitable for use on the home-made slide rule described in the article. Points and values indicated may be pricked through onto waterproof paper, or if desired, the scales shown may be used. The final scale is pasted over the scales on an ordinary slide rule or on two plywood strips. When plywood strips are used, they may be mounted in a frame as shown on opposite page.

y Slide Rule

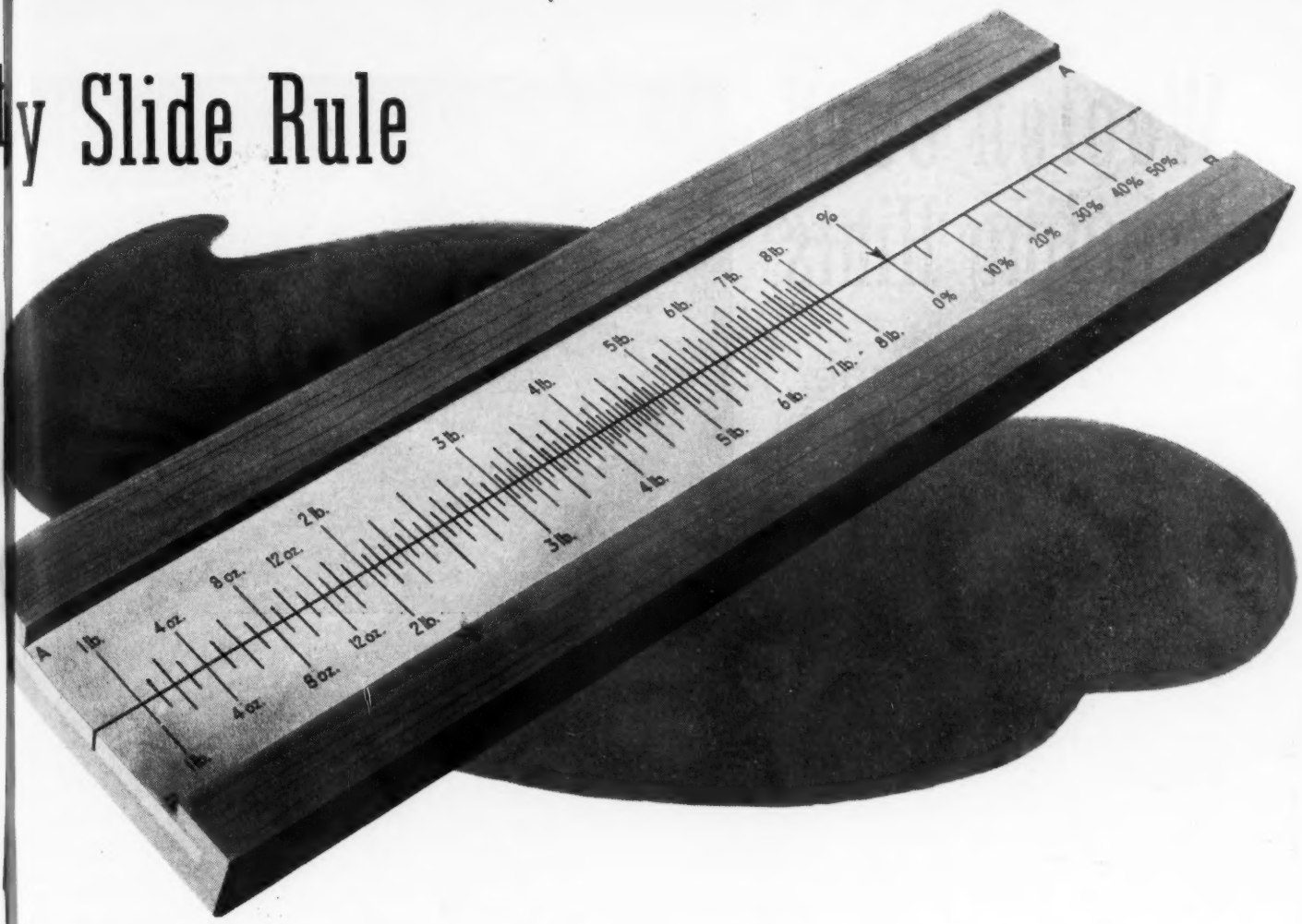


TABLE OF GREASE WEIGHTS. Some perchers may prefer to compile a table giving finished weights and the grease weights required for various percentages of finishing losses. To prepare such a table, set the slide with the required percentage loss on Column *B* opposite the % mark on Column *A*. Then read off without any further movement of the slide the grease weights on Column *B* for any finished weight on Column *A* and enter the results as shown in Table I.

CONSTRUCTION OF SLIDE RULE. The slide rule is constructed by pricking off the calibrations from the slide of an ordinary slide rule, each unit representing 1 oz. For instance, 16 on a regular slide rule is marked 1 lb. on the percher's slide rule. The percentage losses marked at the top of Column *B* are made from actual calculations to give the grease weight of a certain weight of blanket with the percentage loss required. For example, by calculation, a 4 lb. blanket with a loss of 20% would require a grease weight of 5 lb. Consequently, the 4-lb. mark on Column A would be set opposite the 5 lb. mark on Column *B*, and at the top of Column *B* an arrow marked 20% would be inscribed opposite the % mark at the top of Column *A*. This procedure is repeated for each percentage loss. The two slides *A* and *B* are then mounted in a wooden frame made of plywood. In order to keep the figures legible, slides *A* and *B* are covered by cellophane or lacquered.

Table I. Grease weight of finished blankets with various percentage losses.

Per Cent Loss	*Finished Blanket Weight*					
	2½ lb.	*3 lb.*	*3½ lb.*	*4 lb.*	*4½ lb.*	*5 lb.*
10	2 lb. 13 oz.	3 lb. 6 oz.	3 lb. 14 oz.	4 lb. 7 oz.	5 lb. 0 oz.	5 lb. 9 oz.
15	2 lb. 15 oz.	3 lb. 9 oz.	4 lb. 2 oz.	4 lb. 11 oz.	5 lb. 5 oz.	5 lb. 14 oz.
20	3 lb. 2 oz.	3 lb. 12 oz.	4 lb. 6 oz.	5 lb. 0 oz.	5 lb. 10 oz.	6 lb. 4 oz.
25	3 lb. 5 oz.	4 lb. 0 oz.	4 lb. 10 oz.	5 lb. 5 oz.	6 lb. 0 oz.	6 lb. 10 oz.

Woolen Card Grinding Hints

Setting the grinder, correcting hooked wires, and strickling

By DAVID FREEDMAN

● Not only is it important for woolen card clothing to be ground at regular intervals, but the grinding must be done correctly. Improper grinding is worse than no grinding at all, for once cards are improperly ground, their efficiency can drop appreciably.

Cylinders are ground at the normal speed they run in the card. Before commencing to grind, it is a good practice to strip the card and examine the cylinder for deflected or crushed wires. Straighten the crushed wires and clip off all long wires. Clean the wires from burrs, seeds, etc.

Grinders should never be set into the wire so deep as to cause sparks. Hooks and fused points are the result and the fibers will be torn in the carding process.

Workers should not be run too fast in the grinding frame. It is difficult to state a speed limit, because of the large variety and different thicknesses of the materials used for making worker rolls. In general, however, 400 r.p.m. is regarded in some mills as a safe speed at which rolls remain balanced and can consequently be ground true.

Whether or not a roll is smooth and true can best be determined while the roll is in motion. Most carders rely on their sense of feeling to ascertain the condition of a roll. One successful carder relies entirely on his sense of sight. Looking along the surface of the revolving roll and finding that the roll shows an even, black surface from end to end, he considers the grinding job finished. The least sign of a light (white) spot shows that more grinding is necessary.

Cylinders and doffers are ground simultaneously in the card by a traverse grinder. The working direction is reversed and the grinder wheel must run against the smooth side of the wire. A stripper is used in the top worker poppet to transmit power from the cylinder to the grinder. Workers, strippers, and other small rolls are ground in a special stand.

SETTINGS. Grinders should be set firmly enough to produce a keen buzzing sound. If they are set too light, the points of the wire will be ground off straight, leaving no heel. If set too firm, the points will be too light and become hooked. Therefore, use great care in setting the grinding wheel.

Main cylinders should always be ground with a traverse grinder. This grinder should be perfectly level with the card setting, or the cylinder will be ground excessively in the center and will be left high on each side of the card, spoiling the cylinder.

Ring doffers are often ground improperly to the extent of hooking the wire. These hooks sometimes can be removed from the point of the wire by using a brush made from fancy fillets tacked to a board, and stroking the rings with this brush while they are running at a rapid speed in the grinding frame. If this does not remove the hooks, another method may be tried. Reverse the grinder, also reverse the doffer and run against the point of the wire for approximately one traverse of the grinder. Then reverse the grinder and doffer again and run the right way for about 2 min. with the grinder wheel set up fairly close to the wire. After this has been done, stop the traverse grinder and use the brush.

Usually, proper setting of the traverse grinder in the first place can prevent hooking of the wires. The most common cause of hooked wires on ring doffers is caused by too light grinding. Light grinding merely burns the points and does not maintain the proper pitch on the wire points.

Fancy wire will gradually wear to a needle point. The time required depends on the size of the wire and the speed of the fancies. Needle point wire is not recommended for a fancy. A chisel point is more suitable and will produce better work.

It is sometimes considered good policy to burnish the wires a little after grinding, using a hand card with fancy wire.

Run the roll at the speed normally employed in grinding. Use a hand card with the wires pointing away from you. Fill the wire with wool, preferably of long staple and oil the wool. A few strokes back and forth will help make the wires smooth. Emery dust remaining in the wires is removed in this way, thus preventing it from getting into the stock.

Many carders on fine work believe in strickling after grinding, using either an emery block or a canvas strickle. Much can be said in favor of strickling. In addition to cleaning the dirt out of the wires, a strickle makes the wire smoother and capable of better work.

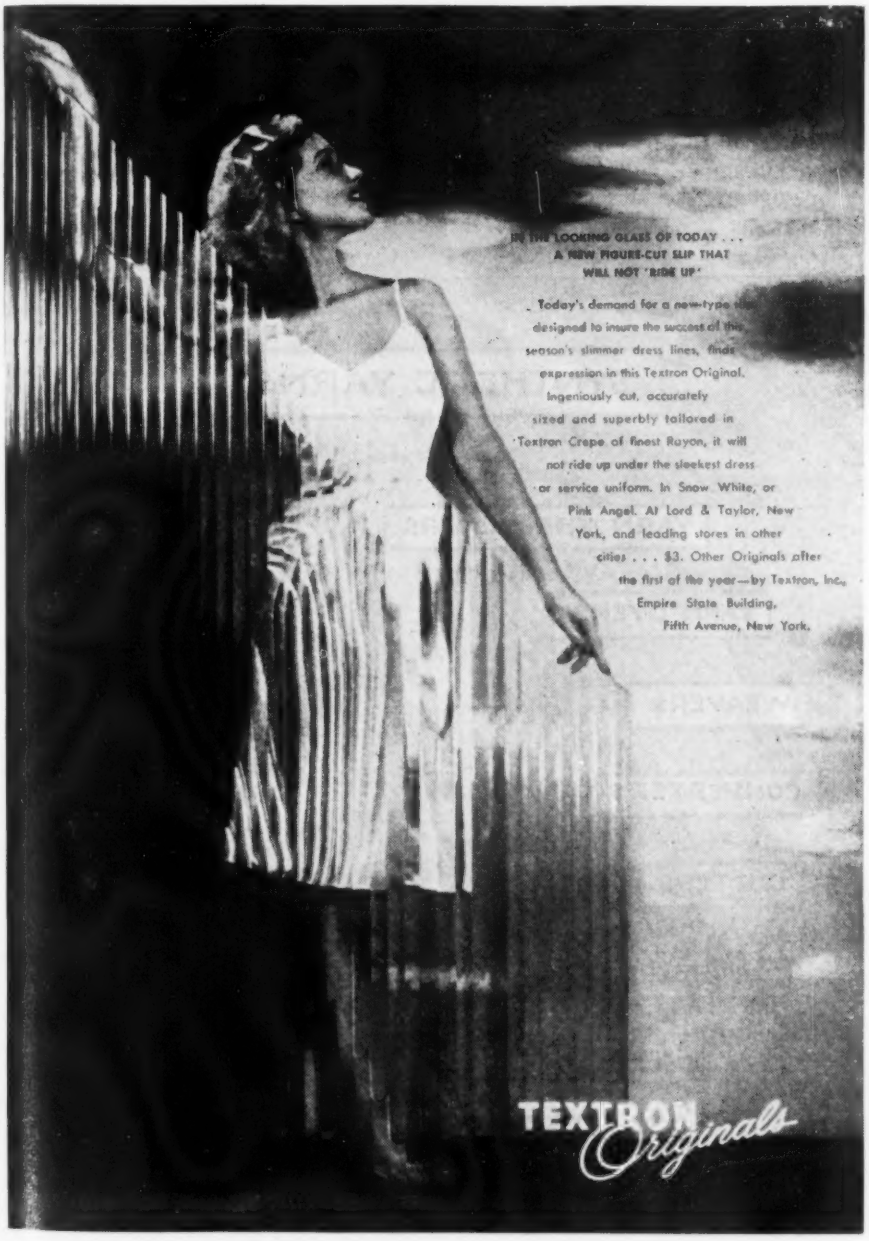
If a hand strickle is used, only a thoroughly reliable worker should do this work. It is humanly impossible to control the pressure accurately over the entire width of the carding surface, and the benefit of strickling may easily be turned into a harmful practice by grinding high and low spots into the fillet.

TEXTRON—Atlantic Rayon's Answer

TO THE POSTWAR RECONVERSION PROBLEM

● On Oct. 8 many a New Yorker was startled to find the back page of his newspaper occupied by an advertisement headed, "Opening Today—An Historic Exposition, TEXTILES AT WAR." This ad appeared over the signature of Textron, Inc., 42nd Floor, Empire State Building, New York, N. Y.

Relatively few New Yorkers had ever heard of the name Textron; and there was little in the advertising—which depicted a paratroop attack in Tunisia, jungle hammocks in the South Pacific, and mountain infantry in Alaska—to explain the character of the concern and its purpose in advertising.


IN THE LOOKING GLASS OF TODAY . . .
A NEW FIGURE-CUT SLIP THAT
WILL NOT 'RIDE UP'
Today's demand for a new-type slip designed to insure the success of this season's slimmer dress lines, finds expression in this Textron Original. Ingeniously cut, accurately sized and superbly tailored in Textron Crepe of finest Rayon, it will not ride up under the sleekest dress or service uniform. In Snow White, or Pink Angel. At Lord & Taylor, New York, and leading stores in other cities . . . $3. Other Originals after the first of the year—by Textron, Inc., Empire State Building, Fifth Avenue, New York.
TEXTRON Originals

"In the looking glass of today"—part of one of the impressive four-color advertisements run by Textron in women's magazines. Many of these are double-page spreads.

Those residents of Gotham Town who did know the significance of the name Textron were the readers of such magazines as the *New Yorker*, *Vogue*, *Harper's Bazaar*, *Charm*, and *Glamour*, in which more informative advertising had already appeared over the same signature.

Not even the latter group, however, realized that all this commotion was the first public manifestation of one of the most outstanding attempts in the textile industry to overcome a postwar reconversion problem—or that the concern basically involved was the Atlantic Rayon Corp., of Rhode Island.

HISTORY. Atlantic Rayon used to be what is known as a yarn converter, and its primary business was the throwing and dyeing of rayon and other synthetic yarns. Early in 1939 (the year in which it changed its named from Franklin Rayon Corp. and divorced itself completely from Franklin Process Co.) Atlantic employed only 500 people, but later that year it opened up a throwing division in Massachusetts and added 300 more. In 1942 it came to the support of the war effort by establishing a parachute division, with one unit in Massachusetts and later another in nearby New Hampshire, and shortly went beyond parachute production into the manufacture of jungle hammocks, arctic tentings, and other articles for war. In September of this year Atlantic Rayon acquired Suncook Mills in New Hampshire, in order to control its weaving. The result of these moves is that today the company employs 4,500 people, nine times as many as it employed in 1939.

In common with other units in the textile industry, Atlantic Rayon has found that dealing with the Government on war work is a somewhat erratic business, with lulls occurring between contracts and with variations appearing in the sizes of contracts, even in spite of the fact that in its first twelve months of operation the parachute division turned out almost twice as many parachutes as the entire country produced in 1941. Therefore, to

keep its employees and equipment, including about 2,000 sewing machines, busy during the quiet periods, Atlantic recently turned to the production of civilian goods, including lingerie, shower curtains, and piece goods.

With the possibility of drastic curtailment in war production on the horizon, Atlantic's management has found in its limited production of these civilian articles a possible basis for taking care of its reconversion problem.

VERTICAL INTEGRATION. Vertical integration of this sort has appealed to many textile mills as something worth playing with (in imagination) for many years; but, with a few outstanding exceptions—notably in the knit-goods field, in the men's woven-underwear field, in the men's summer-suiting field, and of course in bed linen, towels, and so on—little has ever been done about it. The Atlantic Rayon idea is particularly unique when one considers that it is confined to woven articles made strictly from synthetic yarn.

The company is giving recognition to the fact that we are entering a synthetics age and that the development of new fibers is still in its relatively early stages. Atlantic is ready to employ any synthetic fiber which meets the needs of its products, as determined by its large and recently expanded research divisions. It sees in its production of finished articles an opportunity to make certain that its selection of fiber and methods of production best suit the needs and wishes of the ultimate consumer.

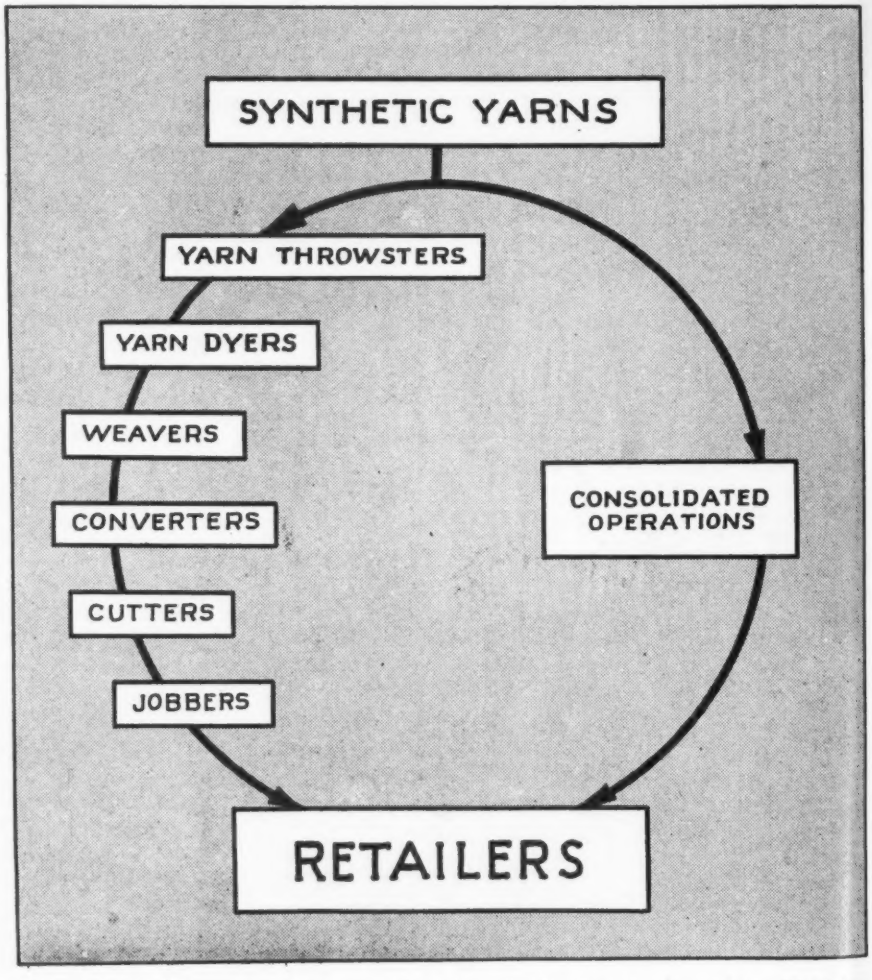
The management also hopes to benefit from the simplification which any well-conceived vertical integration appears to offer. It has not forgotten how uncomfortably it was squeezed at times between the fiber producer who established a profitable price and the converter who put on pressure for a low price. Vertical integration, Atlantic believes, will eliminate the hazards of a speculative business, in which yarns and fabrics are bought in quantity when prices are low to be disposed of at leisure when prices are high, the latter period leaving the mill with no work to do. Furthermore, manufacture of consumer products insures that the advantages of high-quality yarns and high-quality fabrics will not be sacrificed through poor design and manufacture of those products.

SALES ORGANIZATION. And so, with all this philosophy developed, studied, and satisfactorily proved, Atlantic has taken the next and final step toward completing an organization ready to make and merchandise consumer garments and piece goods. This is the setting up of a sales organization which will reach the department stores and other retail outlets. Textron, Inc., established in New York State early in April of this year with a capitalization of $100,000 in common stock, is the name of this sales organization.

Realizing that the first job of any new company breaking into a field in which it has been previously unknown is one of building prestige, recognition, and confidence—all assets which are so necessary as a preliminary to doing business—Textron has launched one of the most impressive promotional campaigns that the textile industry has ever witnessed.

Only a part of this promotion is the elaborate space advertising in consumer magazines, a campaign which involves regularly monthly schedules of four-color, double-page spreads featuring "Textron Originals" (lingerie) and Textron fabrics, in *Vogue*, *Harper's Bazaar*, *Glamour*, and *Charm*. Four-color single pages are used monthly on the same products in the *New Yorker*; one-half page advertisements on shower curtains every other month in *American Home* and *Better Homes and Gardens*; and single columns every other month on other products in *Ladies Home Journal* and *Parents Magazine*.

The war museum in the Empire State Building in New York is another impressive item in Textron's promotion. Although the establishment of the museum was announced Oct. 8, it is not fully completed. Three dioramas (representations in miniature by means of models and paintings) showing the use of Atlantic Rayon products in paratroop action, military life in the South Pacific, and mountain activity in Alaska, will be supplemented eventually by a diorama illustrating the dropping of heavy equipment by cargo chute, another showing the dropping of fragmentation bombs, and a third showing the loading, towing, and descending of gliders. All dioramas are the work of Louis Paul Jonas, leading artist who has accomplished much similar artistry in the field of natural



How Atlantic Rayon sees its manufacturing and sales structure simplified by vertical integration. Left hand side of chart shows usual channels; right shows the Textron set-up.

Major Albert H. Jackman, expert on mountain and winter warfare, examining diorama in Textron's war exhibit. Diorama shows troops in arctic; another diorama shows troops in tropics; and a third depicts paratroops in action. Three more dioramas are in preparation.

history. Also included in the exhibit are jungle hammocks, fragmentation bomb chutes, mountain tents, cargo chutes, and other actual combat equipment, together with an array of historic photo-murals by Drix Duryea assisted by M. D. C. Crawford. Three demonstrations of parachute rigging are given daily. At the opening in October, service men were on hand to explain the dioramas and answer questions.

This is a permanent war museum which may be made available to the Treasury Department for shipment to various cities throughout the country in connection with future war-bond drives.

Use of the museum is being made to promote the sale of war savings stamps, the admission charge being the purchase of $1.00 worth, and also of war bonds. It is planned furthermore that future newspaper advertisements will invite the reader to order a war bond from Textron and receive a sticker on which the purchaser may write a special message to the Axis, this message to be placed on a fragmentation bomb. This parachute-bomb war-bond campaign has been worked out with the cooperation of the Army Ordnance Division and the Treasury Department.

Early results of Textron's promotional campaign are shown in the featuring of the Textron name in advertisements by several prominent retail stores.

THE MEN BEHIND IT. Royal Little, president and general manager of Atlantic Rayon Corp., is president and general manager of Textron, Inc. Marshall Rawle, assistant treasurer and assistant general manager of Atlantic, is treasurer of Textron. Other Textron officers include Charles A. Houston (attorney), secretary; C. B. Quinn, controller; J. A. King, assistant treasurer; D. J. Hayden, assistant controller; and Mrs. A. E. S. Peterson, assistant secretary. The first five constitute the board of directors. John A. Spooner, formerly advertising manager of American Viscose Corp., joins Textron on Nov. 15 as vice president in charge of advertising and promotion. The advertising counsel for Textron is J. Walter Thompson Co., New York.

The integration program represents an expansion of Atlantic Rayon's former activities and does not mean that the company will abandon any of its older departments and types of business. Its yarn division, including throwing, dyeing, and miscellaneous processing, which grew from a volume of 23,000 lb. annually in 1923 to 11,800,000 lb. annually in 1941, will be continued, under the direction of H. F. C. Wilcox, vice president. The Industrial Fabrics Division, with Val Dietz, Jr., as general manager, will continue to sell Suncook's Flightex Fabrics for use on aircraft. The Atlan Fabric Division, with T. J. Muldoon as general manager, will convert rayon greige goods for the cutting trade. The large research departments will be further expanded under the general supervision of Eliot Farley, chairman of Atlantic's board of directors.

J. Linzee Weld, formerly president and treasurer of Suncook Mills, is treasurer of Atlantic Rayon and, in his capacity as vice president in charge of manufacturing, has general supervision of all plant operations. J. R. Fish is plant manager of Suncook Mills Division; J. H. W. Snead, of the Parachute Division; and F. W. Phelps, of the Manchester Division.

There is nothing static about Atlantic's future plans.

Unraveling Surplus Goods Problem

Many-sided attack by Washington agencies gives complexity to situation

By GLADYS MONTGOMERY

Washington, D. C.

● At a recent hearing before the Patman Committee on Small Business, Frank M. Folsom, Assistant Chief of the Office of Procurement and Material of the Navy Department, used a textile item to emphasize the importance of Government developing a plan and setting up adequate machinery for the orderly liquidation and distribution of postwar surplus goods. He pointed out that for 20 years after the conclusion of World War I, left-over woolen underwear was on sale at cut-rate prices in the domestic market in competition with current production. He emphasized the disturbing effects on the industry as a whole—the effects continuing in some degree until the last batch was sold late in 1939.

The lesson of what happened because of a lack of a plan for the disposal of such goods when hostilities ended suddenly in 1918 has been taken to heart by Government and by industry. This explains the prominence now given this phase of postwar planning as one of the most urgent "musts" for which a workable solution has to be found. The urgency is emphasized by the fact that the left-over stockpile will be five to ten times as great as the $5,000,000,000 surplus from the first World War, it is roughly estimated.

THE ATTACK. The White House through its Office of War Mobilization, Congress through several active committees, the armed services, and other procurement agencies of the Government, are tackling the problem from every conceivable angle. The many-sided attack on the problem has created an appearance of confusion, but it is more important to regard it as an indication that Government is determined to do something about it, and to do that something on time.

That a master-plan is now in the making is everywhere taken for granted. That such a plan may include a new over-all policy-making agency to handle surplus goods, as well as other problems incident to the conversion of industry from war to peace production, is held likely. Indeed, such men as Bernard M. Baruch and Arthur D. Whiteside, Director of the Division of Civilian Requirements of the War Production Board, are already being mentioned as eminently fitted to head such an agency, if the Government's over-all surplus plan calls for it.

Pending the emergence of such a plan, the official thinking as to what it must embrace and as to what it must accomplish is very definitely crystallizing. One of the top planners summarized it thus: first, new industry production and employment must be safeguarded against competition from the surplus; second, the domestic market must be protected against clogging and an upset of prices from the dumping of war leftovers; and third, distribution of surplus goods must be gradual and orderly and must be channeled through the regular distribution outlets.

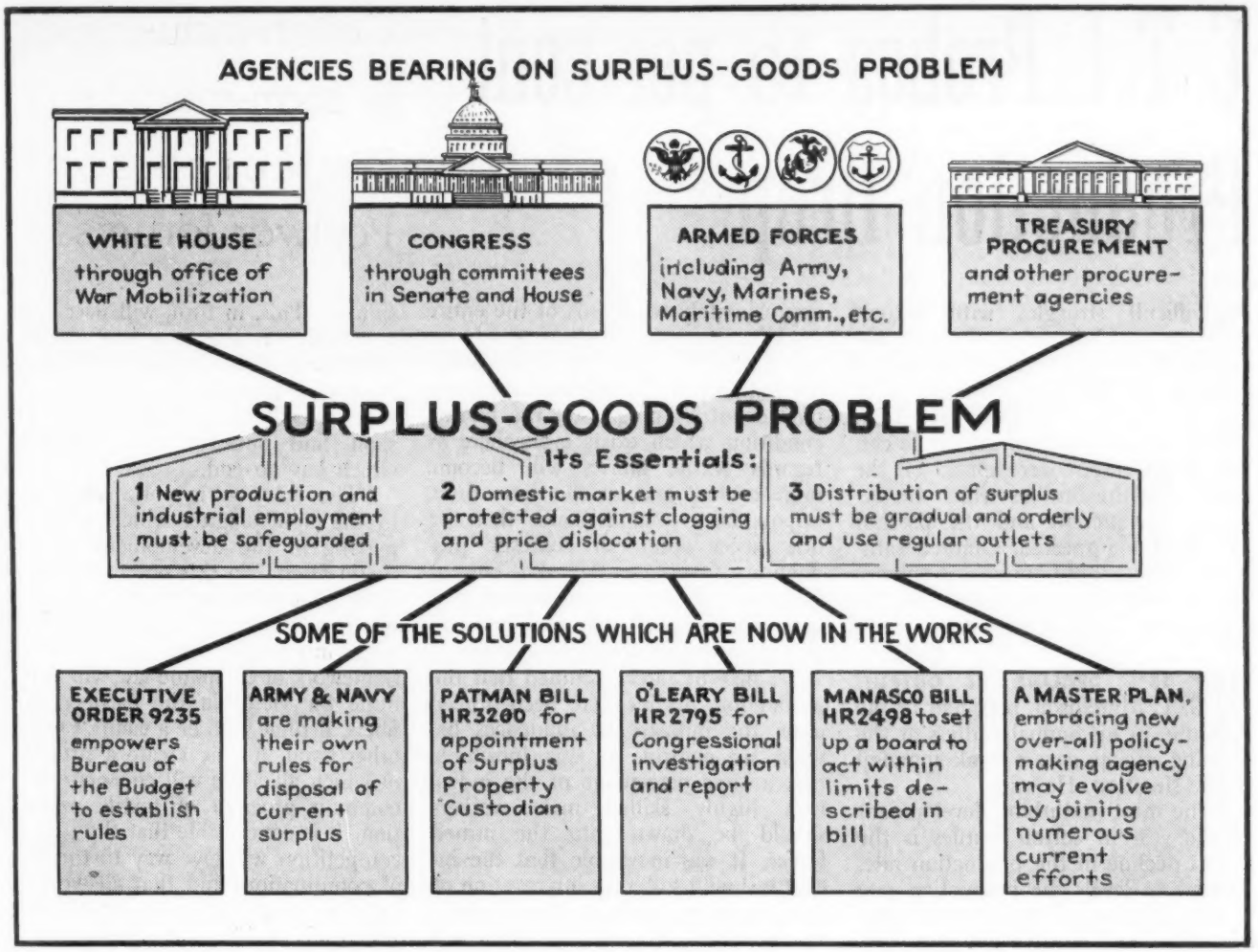
Speculators and gyps who cornered so much of the surplus from World War I at bargain prices and threw it on the market with a single eye to their own profit have no place in the Government's calculations, although it is recognized that no plan can be developed that will be sufficiently water-tight to keep speculators out of the picture. The Government will be satisfied if the amount handled through these sources can be kept down to driplets here and there. Aside from the major economic and stabilization objectives cited above, the planners believe that the kind of liquidation now contemplated would return to the Government a much higher proportion of the original cost than was represented in the 36c. on the dollar realized on the left-over pile in 1918. (The recovery on textiles was placed as high as 59c. on the dollar.)

ELEMENTS OF SITUATION. Today's situation, however, is different from that of 1918 in many ways—the war is unlikely to end on all fronts at once; there is unusual variety in the stocks carried; lend-lease and relief-and-rehabilitation can absorb great quantities; demobilization will be more leisurely and a larger standing army and navy will be retained; stock-pile is expected to begin diminishing in near future.

Arrangements for disposal of surpluses came as early as August, 1942, when the President issued Executive Order 9235 which empowered the Bureau of the Budget to establish definite rules and regulations governing the disposal and utilization of Government surpluses. All Federal procurement agencies must survey their inventories and declare their surpluses to the Procurement Division of the Treasury. The order had two exceptions—one, in the case of tactical supplies; and two, perishable. The Bureau of the Budget was designated the policy-making group; and Treasury Procurement, the operational group.

As a result of this order, there was organized in the Treasury Procurement Division, the Federal Property Utilization Branch, under which the country was divided into 11 regions with headquarters in each region. Surplus goods are now turned over to the regional warehouses after they have been appraised and cataloged. Then a listing is given to the agencies, and if the articles are desired by any of them, a negotiated sale is arranged.

Army and Navy, along with other departments of the Government, are supposed to report their surpluses to the Treasury Procurement; but under the two exceptions allowed—tactical and perishable supplies—can be classed almost any surplus articles. Consequently the War Department has its own regulations for dealing with the disposal of Army surpluses and the Navy has a somewhat parallel plan. Recently the Army has been releasing comparatively small amounts of consumer items on which it is stocked beyond immediate needs. These articles have been offered first to any other Army branches, then to Government agencies, and after that to Treasury Procurement. Much of the the surplus supply never is put up for sale to the public. What does reach the various depots for sale to civilians is negotiated with Army officers in immediate custody of the property. Government agencies often swap


AGENCIES BEARING ON SURPLUS-GOODS PROBLEM
WHITE HOUSE
through office of War Mobilization
CONGRESS
through committees in Senate and House
ARMED FORCES
including Army, Navy, Marines, Maritime Comm., etc.
TREASURY PROCUREMENT
and other procurement agencies
SURPLUS-GOODS PROBLEM
Its Essentials:
1 New production and industrial employment must be safeguarded
2 Domestic market must be protected against clogging and price dislocation
3 Distribution of surplus must be gradual and orderly and use regular outlets
SOME OF THE SOLUTIONS WHICH ARE NOW IN THE WORKS
EXECUTIVE ORDER 9235 empowers Bureau of the Budget to establish rules
ARMY & NAVY are making their own rules for disposal of current surplus
PATMAN BILL HR3200 for appointment of Surplus Property Custodian
O'LEARY BILL HR2795 for Congressional investigation and report
MANASCO BILL HR2498 to set up a board to act within limits described in bill
A MASTER PLAN, embracing new over-all policy-making agency may evolve by joining numerous current efforts

Many-sided character of the attack on surplus goods problem becomes evident when the elements are diagrammed.

articles back and forth. For example, it is understood now that a large number of comforters are being held by the Office of Foreign Relief and Rehabilitation Organization until such time as it is decided whether or not they will be needed for this year's civilian use. A Settlement Review Committee has been named for the QM to handle contract termination, with Col. R. C. Moore in charge reporting to Maj.-Gen. C. L. Corbin.

In the current setup, it is difficult for a person who is interested in buying surplus goods to locate the proper selling agent. Not only must he contact Treasury Procurement, Army, Navy, and even WPB through its Distribution Division, but also he must consider that decentralized outside of Washington are 11 regional offices of TP, 13 regional offices of WPB, and 9 Army field offices.

CONGRESS HOLDS DECISION. Whatever uniform policy for dealing with surpluses of all kinds is decided upon, whatever over-all plan is adopted, will be determined by Congress. At present three outstanding bills are before the House, which, at least in part, are concerned with disposal of postwar surplus. Rep. Wright Patman (Dem.) of Texas, chairman of the House Small Business Committee, has introduced a Demobilization and Surplus War Property Bill (HR 3200) which would provide for the appointment of a custodian of surplus Government-owned property to be appointed by the President. Patman wants to set up his committee for a leading part in legislation on this problem and already hearings have been held.

Rep. James O'Leary (Dem.) of New York, chairman of the House Committee on Expenditures, is also bent on having his committee take the lead in such legislation. HR 2795, which has already passed the House, provides for a joint Congressional investigation of the surplus problem with a report and recommendations to be made not later than six months after the bill has been enacted. It would give Army, Navy and Treasury Procurement authority to dispose of surpluses for the duration of the war. However, they are already operating under authority of the Executive Order already mentioned, but the bill would limit their powers to the duration.

The bill is now before the Senate Committee on Expenditures in the Executive Departments. At this writing no hearings have been scheduled by the Senate Committee. If it should be radically changed in the Senate the House Committee would push the bill of Rep. Manasco, a member of O'Leary's committee.

HR 2498, introduced by Rep. Manasco (Dem.) of Alabama, differs from the O'Leary bill in that it proposes to set up a board at once, made up of representatives from War, Navy, U. S. Maritime Commission, commerce and industry to be appointed by the President with advice and consent of the Senate. The bill suggests definite methods for disposition of surpluses. The board would work through Treasury Procurement and the Bureau of the Budget.

The reason that hearings have not yet been scheduled for the Manasco bill is that if HR 2795 has a chance of passing it stands to reason that some of O'Leary's committee members would be appointed to make a study of the problem. Hence, Manasco's bill would be more or less a duplication.

C. T. I. Probes 15 per cent Production Drop

Cotton-industry lag is "man-made" says Dr. Murchison—Postwar forums

● Difficult struggles with current problems, and hopeful views of the future divided the stage at the annual meeting of the Cotton-Textile Institute in New York on Oct. 20 and 21. Reasons for the present decline in cotton goods output were spread on the table, and the hurdles which lie between the present and the postwar period were inspected. Granted satisfactory solution of numerous problems, the successful developments of the future were held up to view.

THAT 15% DECLINE IN OUTPUT. Dr. C. T. Murchison, president of the institute, in his annual address at the opening session, gave a frank appraisal of the situation. He said:

"The most perturbing development of the year in cotton textiles is the recent decline in the production rate. At present levels the production rate is still phenomenal and exceeds what was considered possible five years ago. Nevertheless, the output currently is approximately 15% under the high level of 1942. This production decline is, of course, no threat to an adequate supply for the Army and the Navy. Military requirements would be amply met even if production declined another 25%. Nevertheless, the decline must be viewed very seriously because the essentiality of cotton textiles continues far beyond the range of military requirements. They are essential in the marketing of agricultural products and as components of supply material necessary to industry. The unprecedented volume of employment in the United States also creates a demand for work clothing beyond anything previously known. The apparel and household requirements of the population as a whole to only a small degree fall into the classification of non-essential. Lend-lease and rehabilitation takings of cotton textiles have been kept to moderate amounts, not because the needs of our allies are small, but because our production is not larger.

"The extreme importance of United States production is emphasized by the paucity of production in other countries. It is a startling fact that the cotton-textile industry of the United States is currently producing approximately two-thirds of the entire world's supply of cotton goods or twice as much as the rest of the world put together. As the liberation of occupied countries progresses, the famine condition which exists everywhere as regards textile fabrics will become more evident and, at the same time, impose far greater demands than we now know upon our domestic production. Consequently, the current shrinkage in cotton manufacture, if it proceeds unabated, may well prove to be a calamity of the first magnitude.

"It may be safely assumed that the production decline has been forced upon the industry by influences beyond its control. It was inevitable that a large percentage of the industry's highly skilled male workers should be drawn into the armed forces. It was inevitable that the industry should suffer an interruption of its normal replacement requirements of equipment. But circumstances such as these do not explain fully the production decline which has occurred.

"The rest of the explanation lies in Government administrative policy, is definitely man-made and can be man-corrected. The use of unscientific price controls; the imposition of a system of contract renegotiation which is formless, capricious and therefore unpredictable; the establishment of a so-called employment stabilization program which in its practical operation is hesitant, indecisive and confusing, are the major corrosive elements in the industry's production program. It is a fact of economic life that the selling price of a product must cover the cost of manufacture if the article is to continue in production. I wish to bring the difficulties into the open because only in that way can full-scale cooperation for their removal become possible."

Turning to postwar problems, Dr. Murchison said, "Formulation of a sound raw cotton policy is a highly complicated task from whatever angle we approach it. If cotton is to be exported in considerable volume, it must be sold at world prices. This, in turn, will necessitate some form of subsidy or allowance of a price differential which will favor the foreign spinner. This, in turn, will necessitate a subsidy on the export of finished goods and likewise protective quotas on cotton imports. Each step in the process leads to another, and we will soon find ourselves on a pathway which has no end.

"The solution is not made easier by the rapid progress which science is making in the development of synthetic fibers. To this our only answer must be equivalent scientific progress in the advancement of cotton. In the long run, science working within the framework of economic law will determine the victor in the battle of the fibers, if there is to be a victor. On the other hand, it may create a situation in which all fibers will cooperate in a common program of textile production. It is conceivable that the idea of competition will give way to the idea of coordination, and that all working together may produce a result from which all would be the gainers."

FORUMS ON THE OUTLOOK. Four simultaneous roundtable discussions followed the general meeting. Chairmaned by Donald B. Tansil, of Pepperell Mfg. Co., a large group heard army men tell of new fabrics and finishes, manufacturers tell of production possibilities, and stylists tell of the probable consumer attitude, all under the heading "Consolidating Wartime Gains."

Lt. Col. F. M. Steadman, of Philadelphia QM Depot, told of the development of comfortable clothing and equipment for such extremes as the arctic and tropical theaters of war. He stressed water-repellency, mildew-proofing and long-life finishes for which a large capacity will be available postwar. He also emphasized the statistical method of quality control for establishing sampling and testing on a proven basis.

Leonard S. Little, of E. I. du Pont de Nemours & Co., pointed out that large wartime use of fast dyes has given American industry a greater capacity for them. New features have been introduced to textiles through various repellencies and novel combinations of fibers. The soldier is learning to expect service and durability.

A group of principals at Cotton-Textile Institute Meeting, left to right: Oscar Johnston, president, National Cotton Council; Wm. C. Planz, president, Textile Export Assn.; Dr. Claudius T. Murchison, president of the institute.

E. M. Edgerton, of Pacific Mills, pointed out that the fabric of the future should have all the virtues demanded in service. He analyzed the three types of finish: 1. Coating, 2. Additive, 3. Chemical modification of fiber. The last, he said, was newest and possible of greatest development and satisfaction because of its permanent nature.

W. T. White, of Sears, Roebuck & Co., stressed the need for sound planning because special finishes used out of their place might injure the whole program; also finishes must not be used to cover up inadequate fabrics.

Arthur Fluegelman, of N. Fluegelman & Co., urged that the industry encourage the growing and use of longer staple cotton. He also suggested that "the possibility of production direction or control" be explored by manufacturers and promised cooperation of the converters.

A number of women fashion editors and stylists completed this symposium. Miss Jessica Daves, of *Vogue Magazine*, stressed three things: 1. The breakdown in women's preconceived ideas about various fibers through the introduction of many new ones; 2. Public demand for increasing comfort such as tropical clothing for summer wear, which requires wrinkle-proof finish on heavier-weight cottons if they are to be used; 3. Decline in volume of prints, due in part to uninspired designing, and a rise in use of velveteen and corduroy. Newer uses for cotton, she said, might well be in the fields of fine lingerie, slacks (if unwrinkable), and gloves.

"MARRIAGE OF THE FIBERS". The scheduled "Battle of the Fibers" (Charles A. Sweet, of Wellington Sears Co., chairman), proved to be a love feast, with several of the discussion leaders prophesying that the postwar period would be marked by "Marriages of the Fibers." That is, it was generally agreed that to a greater extent than ever before two or more fibers will be used in combination to obtain results not possible with one fiber alone. In some instances fibers will be combined by blending, and in others two or more types of yarn will be used. To illustrate what can be done by combining various fibers, one speaker pointed out that combinations of cotton or viscose rayon and Velon are flameproof.

To give a quick picture of the theoretical textile supply situation at the end of 1944, Stanley B. Hunt, of Textile Economics Bureau, indicated that "capacity" production of the cotton industry would be 5,600,000,000 lb.; rayon industry, 800,000,000 lb.; and wool industry, 650,000,000 lb. Total "capacity" production will be 7,050,000,000 lb., exclusive of synthetics other than rayon.

One speaker stated that former ideas on fiber or yarn properties were not always correct; and there is a growing tendency toward finding out what particular fiber or combination of fibers will best do a given job. This thought was expressed somewhat differently by another speaker who said, "Engineering, economy, and design will determine what material or combination will be used for each purpose."

Among the speakers were O. B. Bromley, Jr., of Aralac, Inc.; F. J. Groten, of World Bestos Corp.; August Haffner, of Haffner Associates; Dr. H. D. Smith, of A. M. Tenney Associates; E. S. Twining of Owen-Corning Fiberglas Corp.

Under the chairmanship of Oscar Johnston, president of the Nation Cotton Council the following discussed the future of American cotton: Richard T. Harriss, of Harriss & Vose; John H. Scatterty, vice-president, New York Cotton Exchange, and C. C. Smith, Commodity Corp., U. S. Dept. of Agriculture. Need of lower production costs in America were stressed, for without improved efficiencies American cotton cannot meet the world market, and the trade deplores the idea of the Government buying up the cotton surplus for export. Nevertheless, under free enterprise, the trade was pessimistic about regaining world markets. On competition with other fibers, it was pointed out that wood and paper had destroyed wider markets for cotton than had synthetic fibers. Examples are venetian blinds instead of cotton awnings, and paper and wood containers instead of cotton bags and bales. Mr. Johnston stated that the country's cotton distribution was the equal of any in the world due to the efforts of the cotton exchanges.

Under the chairmanship of W. C. Planz, president of Textile Export Association, the following discussed the outlook for textile exports: Dr. Alexander V. Dye, National Foreign Trade Council; George Jimines, Chemical Bank & Trust Co., Dr. Frederick Latreille, OEW; A. O. Stanley, Dun & Bradstreet; Robt. P. Sweeny, Dept. of Commerce, and Wilbur Ward, National City Bank. It was urged that the prewar 5% of annual production which formerly was exported be boosted to 10%, and it was pointed out that such a move will make it easier to sell the remaining 90% on the domestic market at a profit. It was expected that Latin America and the Philippines would offer the best markets, but immediately postwar many other fields will be opened up.

AIM OF REHABILITATION. Francis B. Sayre, special assistant to the Secretary of State, addressed the Institute's annual luncheon. He explained the significance of the conference of 44 nations on the relief and rehabilitation problem, pointing out that the aim is to ensure that victims of war shall become producing, active supporters of the United Nations until victory, and that thereafter they shall be self-sustaining, creative participants in a stable world peace. Wayne C. Taylor, Under Secretary of Commerce, spoke favorably of the career men in the foreign service who will carry on after the war into the peace.

Herman Cone, of Proximity Mfg. Co., Greensboro, N. C., was elected chairman of the board of the institute, succeeding W. N. Banks. Dr. Claudius T. Murchison was reelected president, and Paul B. Halstead, secretary-treasurer. Vice presidents are H. M. Comer of Avondale Mills, Sylacauga, Ala., and C. F. Broughton, of Wamsutta Mills, New Bedford, Mass.

Dyeing, Finishing Advances

Cited in papers presented by textile chemists at intersectional contest

● Saving of 50% in the amount of sodium bichromate used in the after-chrome method of wool dyeing are made possible as the result of studies reported in the prize-winning paper presented by the Philadelphia Section of the American Association of Textile Chemists & Colorists at the annual intersectional contest, held Oct. 22, in New York. Second prize was awarded to a paper offered by the Northern New England Section describing new proposed light-fastness standards. Third prize went to the New York Section for its paper outlining the results of a study of factors influencing the adhesion of plastics to textiles. Other papers presented dealt with the dyeing of acetate rayon hosiery, the effect of raw stock dyeing on properties of cotton, progress in manufacture of Aralac, and an improved method for evaluation of detergents.

In the paper presented by the Philadelphia Section it was pointed out that the generally accepted rule of using one-half the amount of sodium bichromate on the weight of dye in the after-chrome method has no scientific basis. Accordingly, a series of over 1,000 tests was made to determine the minimum amount of sodium bichromate needed. As a result of these tests, it was found for dyeings of 0.25% or less, the minimum quantity of sodium bichromate needed is 0.125 to 0.3% based on the weight of the material being dyed; for heavier dyeings one-fourth the weight of the dye is sufficient, provided that it is greater than the amount necessary for a 0.25% dyeing. Three dyers have processed 4,000,000 lb. of wool according to these recommendations since the first of the year and have saved 18,000 lb. of sodium bichromate by so doing. In addition, by reducing the amount of bichromate, the fastness of the dyeings was improved and a better hand was obtained in the finished fabric.

HOSIERY DYEING. Results of an extensive series of mill tests on preboarding and dyeing of acetate full-fashioned hosiery indicate the maximum temperatures to be used in preboarding and dyeing and other precautions which are needed according to the paper presented by the Southeastern Section. Experiments in preboarding show that there was a loss of 22 lb. in bursting strength of hosiery boarded at the highest temperature tried as compared with those boarded at the lowest temperature. This loss was almost exactly proportional to the increase in temperature. Further, as the temperature increased, the hosiery changed in color and lost luster. The conclusion reached is that preboarding should be carried out at as low a temperature as possible to give the results desired and should not reach 210° F., as has previously been recommended by some authorities. For dyeing, the one-bath method is recommended, the dyeing to be carried out at a temperature of 170° F. To prevent formation of wrinkles, it is important that over-crowding of the dyeing machine be avoided.

The study of textile fibers and fabric constructions as factors influencing adhesion of textile-plastic combinations, reported by the New York Section, indicated that the surface roughness of the fabric is important. Likewise, it was shown that the temperature at which the plastic is pressed into the fabric must be controlled carefully. Bleached fabrics gave a higher adhesion than unbleached fabrics. Certain finishing treatments increased adhesion, whereas others decreased it. It appears, therefore, that there is a possibility of developing special bonding finishes to increase the adhesion of plastics to fabrics. As a result of the work which has been carried on, a reliable method has been developed for determining the adhesion strength of various textile-plastic combinations.

Results of experiments to determine the effect of raw stock dyeing on the fiber properties and manufacturing properties of cotton reported by the Southeastern Section show that dyeing results in an increase of waste at the card, a degradation of carding quality as indicated by the nep count, and an decrease in yarn quality as reflected by yarn appearance. Some classes of dyes result in an increase in yarn strength and some in a decrease, sulphur black giving greatest decrease. An excessive increase in end breakage in roving and spinning was also noted with materials which had been sulphur dyed. The experiments showed further that both the dye itself and the dyeing process have a deleterious effect on the manufacturing properties of the yarn.

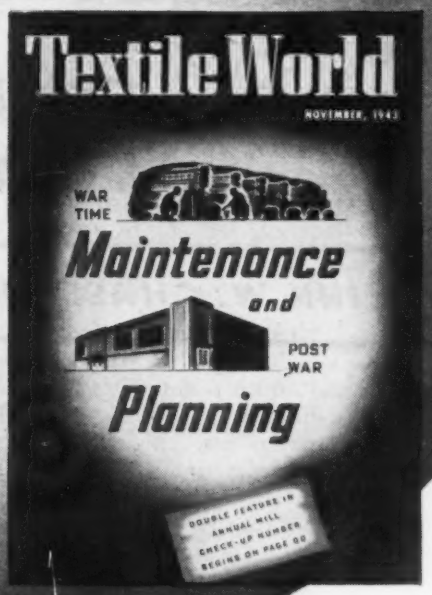
IMPROVEMENTS IN ARALAC. Progress in manufacture of Aralac was outlined in the paper presented by the Rhode Island Section. Since this fiber was first introduced, many changes have been made in the manufacturing methods and the properties of the fiber have been improved. At present the tensile strength of Aralac is approximately 70% that of wool. In general, Aralac can be processed in the same manner as is wool. It is being used chiefly in blends with wool, but it can be employed in combination with other fibers or alone. Although Aralac by itself does not felt, blends of Aralac and wool felt faster than do all-wool fabrics. Usually no fulling of Aralac-wool blends is required. Control of the pH and temperature of wet-processing solutions is important, and drying temperatures should be kept below 212° F.

An improved method for evaluating detergents was proposed in the paper presented by the Piedmont Section. In brief, the method consists of treating samples of 64x64 sheeting with a standard soil and then washing them in a Launder-Ometer. The fabric is then dried and weighed and the amount of soil remaining in the sample calculated. Also, the sample is extracted with ethyl ether and the amount of extractable matter calculated. This method is said to be simpler than the procedures formerly employed and to give reproducible results as to the efficiency of detergents.

The new proposed standards for light fastness suggested in the paper presented by the New England Section is said to have the advantage of simplicity and good reproducibility. The proposed standard is prepared by making two dyeings on wool top—a fast dyeing and a fugitive dyeing—and mechanically blending these in different proportions to obtain the desired degrees of fastness. In this way only two dyes and two dyeings are involved, giving a series of standards of improved evenness of graduation and color loss or change.

W. D. Appel, of the National Bureau of Standards, has been elected president of the Association and will assume that office on Jan. 1. Charles A. Seibert and Hugh Christison were elected vice-presidents.

WARTIME Maintenance and POSTWAR Planning



MAINTENANCE OF PRESENT BUILDINGS and equipment is still the No. 1 job of the mill engineer and master mechanic. There is no abatement in the demand for textiles for our Armed Forces and for Lend-Lease. And there must be no unnecessary shut-downs or slow-downs of textile mill machinery through lack of maintenance. "Keep 'Em Running" was the slogan last year. "Keep 'Em Running" is still the slogan this year, and must continue to be the slogan until the war is won.

But the mill engineer, in common with every other plant executive, now has an added duty and responsibility. Without neglecting his No. 1 job, he must start to do some serious postwar planning. Top-speed, three-shift operation of machinery—often with inexperienced help—has shortened the life-expectancy of motors, mechanical drives, bearings, etc. Lack of time and materials has retarded the replacement of inadequate or obsolete lighting systems, air conditioning systems, water-purification systems, and other auxiliary equipment.

A combination of circumstances has prevented the full utilization of many of the newer developments in such fields as mill construction, power generation, and process control. There is a limit to the amount of new equipment which will be available in the immediate postwar period, and there is a limit to the amount of money which the individual textile manufacturer can spend in any one year for the modernization of his plant. It is all the more necessary, therefore, for mill engineers and other executives to lay out planned, but flexible, programs for bringing their plants up-to-date.

This, the Seventh Annual Mill Check-up Number of TEXTILE WORLD, has a double theme: "Wartime Maintenance and Postwar Planning." The subject of postwar planning is approached realistically in an article discussing the major developments in mill construction and auxiliary equipment which have definite textile applications. This article is intended to serve top executives, superintendents, plant engineers, master mechanics, and overseers as a guide in planning the modernization of their own mills or departments. Following the discussion of postwar planning is a series of eminently practical and timely maintenance articles on wartime techniques for metallizing; welding; painting; lubricating; and relocating equipment.

ANNUAL MILL CHECK-UP SECTION

POSTWAR Planning from the ENGINEERING VIEWPOINT

BY WINN W. CHASE AND EARLE MAULDIN

● Inside and outside, postwar textile mills will be different in many respects from present-day plants. This will be true not only of new buildings constructed after the war, but also of existing mills which are revamped in accordance with modern engineering practices. The textile mills of the immediate postwar period will not be fantastic structures with futuristic machines operated by robots and a master mind to push buttons. But they will combine the best features of those plants which were built or modernized in the last few years before the war plus some wartime developments which have proved their worth in the textile industry or in other industries where similar operations are carried out.

A preliminary step in postwar planning from the engineering viewpoint is to review and assay the prewar and wartime developments in building construction, lighting, air conditioning, power generation, power transmission, intra-plant transportation, lubrication, process control, and other auxiliary services and equipment. The next step in postwar planning is to determine which of these developments can be utilized in one's own plant and to set up a program which will enable one to take fullest possible advantage of them as quickly as possible. The following survey of some of the engineering developments which will be incorporated in postwar textile mills is offered as a rough guide to that preliminary planning. No attempt has been made to catalog every type of new or improved equipment which will be available, but rather to indicate the more important trends.

MILL BUILDINGS

New textile mills erected in the immediate postwar period will be functional in design and will utilize to the fullest possible extent modern building materials of proved value. They will incorporate such features as are found in the windowless plants of Hudson Silk Hosiery Co. and Industrial Rayon Corp.; the almost vibrationless plant of Carter Fabrics Corp., which was "built around the machinery"; and the partly underground plant of Macon Textiles, Inc. Buildings for the most part will be of one-story, windowless, brick or concrete construction, with built-in fireproof insulation. There will be wide column spacing, although not necessarily so wide as to require use of trusses. Floors will be either concrete or hard maple laid on sub-flooring and beams which have been treated to make them termite-proof (or on creosoted sub-flooring and tarred concrete to make them both vibrationless and termite-proof). Floors will be painted or treated with special preparations to prolong their life and facilitate cleaning. Inside walls of brick buildings will be of glazed brick that can be easily cleaned and does not require painting. Washrooms and toilets will have tile floors and walls and will be equipped with modern fixtures.

Single-story plant of Carter Fabrics Corp. is of brick and concrete construction. Manufacturing departments are built without windows; glass blocks are employed as an architectural embellishment in the front of the building; roof is of fireproof construction; floors are of vibrationless type.

Underground weave room of Macon (Ga.) Textiles, Inc. Space between false and standard ceilings contains fresh air ducts from air-conditioning system, power and lighting cables, and sprinkler pipes, and acts as a return air duct; fluorescent lamps in continuous troughs provide uniform illumination.

In some windowless buildings glass block will be used extensively to admit light and for decorative effects. In others, the walls will have no glassed-in openings, and lighting of the interiors will be entirely by artificial means.

Roofs for textile plants will be of the flat type without skylights. A typical construction consists of treated wood decking on wood or steel beams, a damp-proofing course of felt roofing paper, a layer of cork or other suitable insulation, and a bonded tar and gravel roof. Columns supporting the roof structure that have recesses that collect dirt will be boxed in to make the room more sanitary and to improve the appearance.

Rooms will be designed with false ceilings to facilitate light, humidity, and sound control. The false ceiling may be made of expanded metal laths suspended from the roof structure 9 or 10 ft. above the floor; the top side can be covered with a cement plaster, and the under side with accoustical tile or plaster to deaden sound. Fluorescent light fixtures and fresh air outlets will be recessed in the ceiling. The attic space between the real and false ceilings will conceal the fresh air ducts, sprinkler lines, and power and lighting cables. It can also serve as a return-air plenum, thus eliminating the need for return air ducts.

The floor plan of the buildings will be such as to permit straight-line flow of work in process from department to department without doubling back. Ample floor space will be provided for efficient machinery layouts. Likewise, provision will be made for installation of conveyors and other mechanical materials-handling equipment.

Even though no great expansion of the textile industry is expected in the immediate postwar era, in some instances older buildings will be torn down and replaced with modern structures.

REMODELING OLD PLANTS. The number of completely new mills which will be built is small, however, compared with the number of existing plants which will be remodeled to take advantage of as many as possible of these building improvements. Just what will be done in the way of modernization depends largely on the design of the buildings to be revamped.

One step which will prove feasible in many plants is the replacement of standard mill windows with glass block to secure better diffusion of light and reduce heat losses and cost of window upkeep.

In other plants the windows may be bricked in and fluorescent lighting systems and air conditioning systems installed to permit better control of light, humidity, and temperature. Insulating materials can be applied economically to present roofs and side walls. If the cost of vibrationless floors and ceilings prohibits their incorporation into older buildings, it may be feasible to buttress the walls from the outside to prevent excessive vibration.

When an existing building does not lend itself to rearrangement or relocation of equipment to provide higher efficiency, an addition to the building may be the answer.

AIR CONDITIONING

The progress already made in air conditioning of textile mills will be dwarfed by the further advances which can be foreseen in the immediate postwar period. Windowless buildings, high machine speeds, introduction of new synthetic fibers, desire for increased production and higher quality, and greater interest in the comfort, health, and efficiency of employees are among the factors which contribute to the need for air conditioning.

Numerous systems and combinations of systems are available for maintaining the temperatures and humidities required in various textile operations, and further improvements in air conditioning equipment and controls can be expected. Size and location of the plant, operations performed, and cost of the equipment will govern the mill engineer in his selection of a system. Optimum conditions of temperature and humidity for some operations have been ascertained; further research and experience will reveal the proper temperatures and humidities for processing the newer synthetic fibers.

For some operations, installation of a fairly simple system for maintaining desired humidity and temperature will be adequate. For other operations, more elaborate systems, with provision for air washing and refrigeration, will be required. In some instances, where the mill uses several different raw materials, and produces a variety of products, the system must be sufficiently flexible to provide any one of a fairly wide range of conditions. For room heating, use of high-temperature hot water offers interesting possibilities.

One development which had just begun to make headway in the textile industry before the war and which is certain to be more widely adopted in the future is the removal of dust, soot, and other foreign material from the air by means of electrostatic precipitators. Another interesting development is a special type of lamp, the rays of which destroy bacteria and fungi; this type of lamp has been employed to prevent growth of mildew in sizing solutions and may very possibly be used in conjunction with air-conditioning systems to kill bacteria. A further possibility is the introduction of a germicidal agent into the system.

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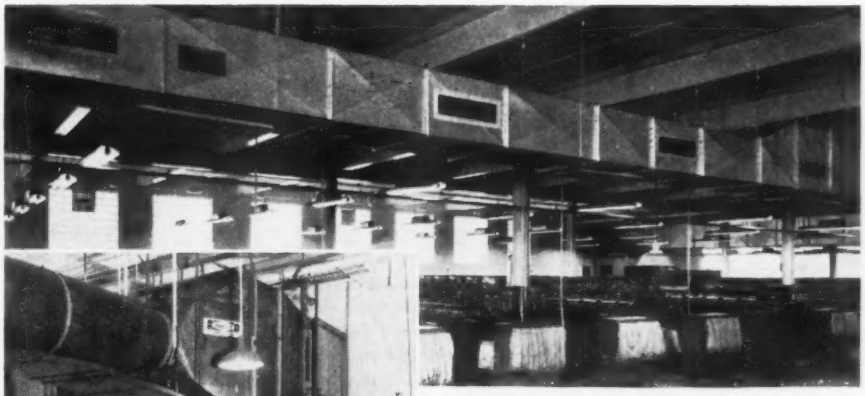
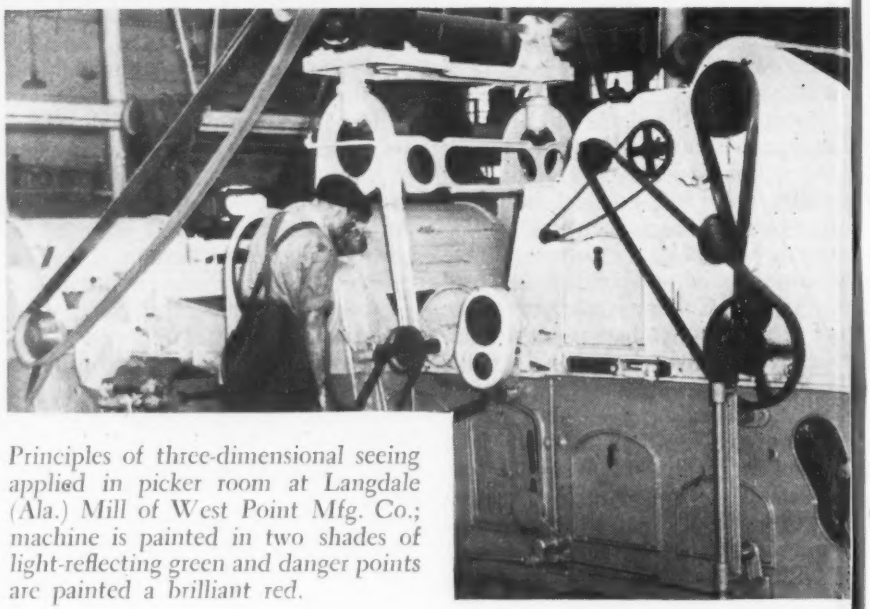


Central-station air conditioning in plant of Adams-Millis Corp. maintains constant relative humidity and temperature in knitting department.

Electrostatic precipitator installed in twisting department of a large southern mill removes soot and dirt from air.

LIGHTING AND PAINTING

A new method of improving seeing conditions through the proper combination of light and color gives promise of revolutionizing the systems now generally employed for painting ceilings, walls, floors, and equipment in textile mills. This method, which has been publicized as "three-dimensional seeing," is the result of several years' research to determine how to provide the best possible natural seeing conditions indoors. This investigation led to the development of a scientific method for selection of colors for any industrial area. Companies which have adopted this method have been able to increase illumination by 100% or more without any change in the lighting equipment or any increase in wattage. As a result, production has increased, there have been less seconds, and fewer accidents, and employee morale has risen.



Principles of three-dimensional seeing applied in picker room at Langdale (Ala.) Mill of West Point Mfg. Co.; machine is painted in two shades of light-reflecting green and danger points are painted a brilliant red.

Briefly, the method calls for painting of machinery in colors which have high light-reflection qualities. The body of the machine is painted with a light-reflecting color, such as turquoise blue; and working parts and other danger areas are painted with a contrasting brilliant color, such as red. Floors, walls, and ceilings also are painted with light-reflecting colors which are scientifically selected to prevent undue eye fatigue, but are of a hue and brightness which cause the eyes to return to the working area and have their greatest comfort at that point.

To obtain the greatest possible benefits from this method of painting, it must be employed in combination with a scientific system of lighting. Fluorescent lighting, which has already replaced older methods in many mills and is certain to be even more widely adopted in the post-war period, permits much higher levels of illumination than were feasible with older systems. For example, whereas intensities of 10 to 20 foot-candles in the weaving department were formerly the "standards," lighting experts are thinking in terms of 60, 80, or 100 foot-candles. In the postwar mill more attention will be paid to the proper balance between general illumination and local lighting on the working areas of machines. Again, greater emphasis will be placed on obtaining the most suitable illumination for such operations as cotton grading, color matching, and inspecting of products under "daylight" conditions.

POWER GENERATION AND TRANSMISSION

Power requirements and other conditions differ so greatly from mill to mill that it is possible to depict only in the broadest of strokes the power plant of the postwar era. Many mills will find that it is cheaper to continue to purchase most or all their power. Where a mill power plant is indicated, its design will continue to depend on such factors as the size and location of the mill, the load, and the amount of process steam required. The availability and cost of various fuels—coal, oil and natural gas—also are factors.

A marked trend in textile mill power plants which was noticeable for several years before the war and which will be accelerated in the postwar period is the installation of high-pressure boilers and turbines—some of the superimposed or topping type. Desirable pressure and temperature limits in textile plants are about 600 lb. and 750° F. Self-contained automatic steam-generating units have proved satisfactory in some industries and may find use in textile mill power plants. Diesel engines will find more widespread use, particularly as auxiliary sources of power.

Automatic stokers and ash-handling equipment; continuous blow-down systems; economizers; air-preheaters; forced- or induced-air fans; soot blowers; indicating, recording, and control instruments; and alarm systems will be utilized extensively to increase the efficiency and reliability of the postwar power plant. Likewise, more attention will be paid than in the past to the scientific treatment of feed-water by chemical or electrical methods.

POWER TRANSMISSION. A survey by TEXTILE WORLD of the power-transmission equipment in 17 southern cotton mills revealed the lack of anything like a standard method for driving a specific type of machine. It did show, however, that individual motor drives and so-called modern group drives have to a large extent replaced the old lineshaft drive. The survey disclosed also the growing use of variable-speed drives of various types.

Numerous improvements were made in power transmission equipment in the last few years preceding the war and several other developments were in the offing when this country became involved in the conflict. It is probable that further innovations will be available soon after the end of the war. This means that the mill engineer will have a rather wide selection of mechanical and electrical power-transmission equipment from which he can take his choice for any given application. This choice will be difficult to make in many instances where there is no one type of drive which has a marked superiority over another type or types.

For many purposes the trend toward use of individual motor drives will continue. In fact, there is a growing tendency toward driving each sec-

tion of certain machines, such as multi-compartment washers, with its own motor. In various departments of the postwar mill more extensive use will be made of motors having special characteristics; e.g., dust-proof, lint-proof, splash-proof, and explosion-proof motors. Likewise, improved motor controls of the electronic and other types will find wide application.

On the other hand, the enthusiasm in recent years for individual motor drives has led to over-motorization in some mills; and this mistake will be avoided in the future by the adoption of modern group drives for the many purposes for which they are suitable.

In mills having steam available, together with a process requirement for low-pressure steam, a recently developed combined mechanical and electric drive from a single turbine will find application for driving finishing ranges and similar equipment.

To correct low power factor, capacitors will be employed more extensively than in the past.

Much wider use will be made of one type or another of variable-speed drives on spinning frames, warpers, slashers, dyeing machines, finishing ranges, and other equipment. Here again the types of drives now available will be supplemented by new types which were in the development stage before Pearl Harbor.

Wherever possible, anti-friction bearings will be employed.

In new plants and in additions to present mills, electric power will be distributed at high voltage to unit substations located near the load centers, where it will be stepped down to utilization voltage and distributed to the loads via short secondary feeders.

Packaged switchboards, assembled by the manufacturers and shipped complete, will replace the old-type built-up panels erected on the job. Power circuits will be run in conduit, with consideration being given the bus-bar type of distribution where changes in location of branch lines or taps are anticipated. More extensive use will be made of portable instruments for checking performance of electrical equipment.

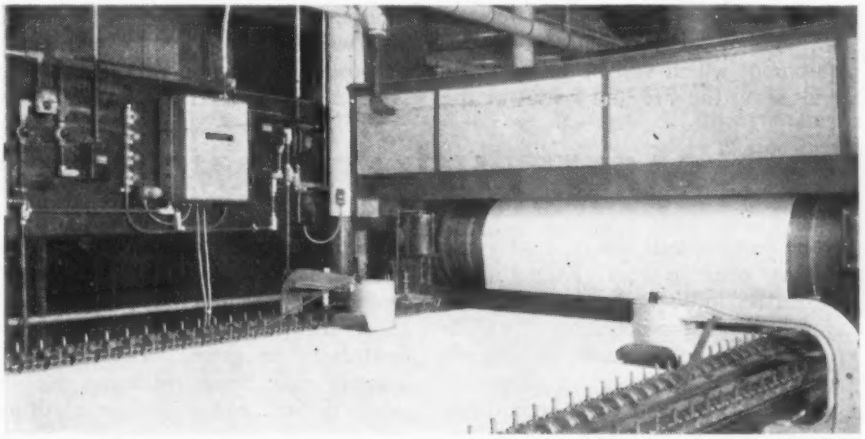
PROCESS CONTROL

A feature of the postwar textile mill will be the emphasis placed on instrumented control of many operations. Although no attempt will be made in this article to list the many types of control instruments which are available now or will be available after the war, it is worth while to consider briefly some of the major trends and developments in process control.

Whereas it formerly was common practice to stick an instrument on a machine to control a single condition, such as temperature, the tendency now is to provide complete automatic control of all variables. On a slasher, for example, the following conditions will be controlled automatically: time and temperature for cooking size, temperature of size in storage kettle and size box, level of size in size box, pressure on squeeze rolls, tension on the yarn, temperature of each individual drying cylinder, and amount of moisture in the sized and dried warp. Another difference which will be apparent in much of the new processing equipment installed after the war is that the controls will be built-in as integral parts of the machines.

When a number of machines in a department are fitted with automatic control instruments, the tendency will be to centralize the indicating and recording devices in the office of the foreman or overseer to permit him to see at a glance the conditions under which each machine is operating.

Heretofore there have been numerous textile mill operations which were not susceptible to automatic control due to lack of suitable instruments. Wartime developments in the electronics industry, give promise that new types of instruments will be developed which will permit close control of many of these operations.



One of the many applications for electronic devices is the weft-straightening control applied to a tenter in a large finishing plant.

WATER SUPPLY, PIPING, WASTE DISPOSAL

Introduction of new synthetic fibers, development of new finishing processes, and demand for higher quality in finished products are rendering inadequate or obsolete many of the present-day water-purification systems. Numerous improvements have been made in recent years in filters, softeners, feeders, controls, and other equipment; and tolerances for impurities in water for various textile operations have been set up. After the war, the 4,000 textile mills using process water will be able to install new systems or modernize existing ones.

In the great majority of mills little has been done in the past in the matter of waste disposal. There is a likelihood that in the not-too-distant future many mills will be forced through legislation to treat their dyehouse and other wastes before discharging them into sewers or rivers. Recovery of solvents used in some of the newer finishing processes is another matter of growing importance.

In planning the new mill and modernizing the old, the engineer will take full advantage of the advances in design of pipes, valves, traps, pumps, and heat exchangers, and of the new materials used in construction of piping and accessories—particularly those for high-pressure and for corrosive solutions. (*Continued on next page*)

LUBRICATION AND CLEANING

Lubrication of textile equipment in postwar mills will be carried out under the direction of a lubrication engineer, who will conduct continuing studies of lubricants, lubricating methods, and proper frequency of lubrication for each type of machine in the plant. This lubricating engineer will make certain that full advantage is taken of the newer developments, such as pressure and automatic lubrication systems; that the proper lubricants are employed on various types of motors, bearings, gears, chains, cams, gears, needles, and other equipment and parts; and that lubricants are changed whenever conditions so dictate.

With well-illuminated departments and with ceilings, walls, and machinery painted in light-reflecting colors, cleanliness will be stressed. To ease the burden of keeping the mill clean, modern aids, such as floor scrubbing machines, automatic cleaning systems based on the blower or vacuum system, lint and dust collectors, will supplement brooms and the air hose.

VIBRATION ABSORPTION

With higher machine speeds, the problem of preventing vibration has become one of paramount importance. At present three chief methods are employed for minimizing vibration: (1) incorporation of vibrationless floors in new plants and additions; (2) buttressing mill buildings from the outside; and (3) mounting equipment on felt, cork, rubber, or other vibration-absorbing material or devices. A special committee of the Textile Division of the American Society of Mechanical Engineers is investigating the problem of vibration and what can be done to solve it. Concurrently, a number of individual companies have begun to take steps to reduce vibration of the machines in their own mills. As the evils of excessive vibration become better known, the various means for combatting it will undoubtedly be fully utilized.

INTRA-PLANT TRANSPORTATION

The present man-power shortage has given added impetus to the installation of materials-handling systems, and this trend toward use of labor-saving devices will continue after the war. A few of the many types of equipment which will be utilized, depending on the size and layout of the mill and the materials to be handled, are ducts and blowers, elevators, power trucks operating with a string of trailers, and tiering or stacking trucks. Hoists, conveyors, and gravity chutes also will be employed for numerous purposes. Pneumatic or vacuum-tube systems will be used to expedite delivery of written messages, samples, etc.

Supplementing the telephone for intra-plant communications will be the public-address systems to permit oral instructions or other messages to be given simultaneously to groups of workers, and the telautograph for transmission of written instructions.

SAFETY, HEALTH, AND FIRE PROTECTION

The postwar mill will be a safer and healthier place to work. Even though the textile industry has reduced the frequency rate of accidents by 62% since 1926, it now ranks in seventh place among the 30 leading industries, with a frequency rate of 7.7 reportable injuries per million hours worked. Recently, however, causes of accidents in textile mills have been analyzed, and in countless plants safety programs have been stepped up. Employees are being encouraged to cooperate in these programs, and are being instructed in safe practices. Well-lighted rooms, ample space between machines, use of mechanical materials-handling equipment, and other features already discussed will contribute to safety. Better housekeeping and more extensive use of safety devices and protective clothing will further reduce accidents. Then, when the man-power shortage is no longer acute, tests will be instituted to detect accident-proneness, and accident-prone employees will be segregated from hazardous occupations, thus preventing at least 50% of the accidents which are now unavoidable.

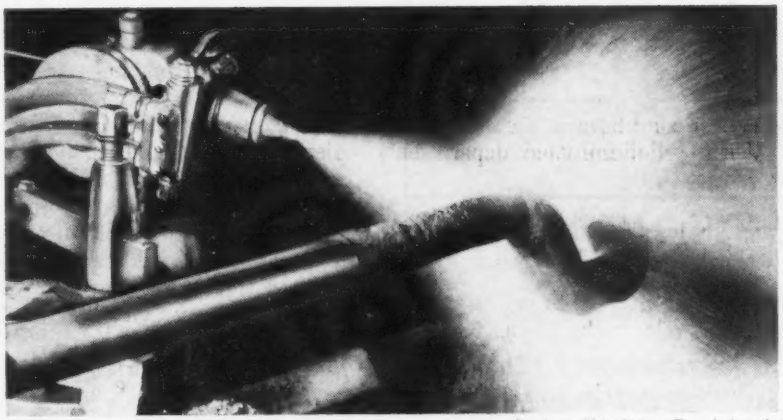
Air conditioning, pleasant rest rooms, sanitary wash rooms and toilets, cafeterias and restaurants serving wholesome food, well-equipped first-aid rooms, and music will aid to the physical and mental health of workers.

Better maintenance methods and more effective use of fire-protection equipment and services will result in fewer and less-destructive textile mill fires. With many of the new finishes being applied from volatile solvents, special precautions will be taken to avoid explosions and fires from these flammable materials.

MATERIALS OF CONSTRUCTION

In manufacture of textile mill equipment and supplies wider use will be made of plastics, aluminum, magnesium, stainless steel, and other materials which will be available in larger quantities than before the war. Several plastic manufacturers, for example, already are making surveys to determine where their products can be employed in the textile industry. In processes involving the use of chemicals, mill engineers will insist on equipment built of corrosion-resisting materials. Other materials which will find new or expanded uses include plywood, plastic-impregnated wood, glass, ceramics, synthetic rubber, asbestos compounds, beryllium-copper, and hard-surfaced metals of various types. Powdered metals will be employed for friction materials, bearings, and other purposes. For small bearings and yarn guides, synthetic sapphires may be used.

METALLIZING



Courtesy Metallizing Co. of America

Reclaiming worn parts and building up protective surfaces by metal spraying

● Metallizing affords a quick and economical means of applying a minimum quantity of a strategic metal to a worn part or to a surface that needs protection. Metallizing is accomplished by spraying molten metals from a special type of spray gun onto the surface to be built up. As the atomized particles of metal strike the surface being metallized, they flatten out and cool almost instantly, building up a stratified metal structure of small, flattened, interlocking metal particles.

Textile mill applications for metallizing include the building up and reconditioning of spindles, drawing rolls, sand rolls on looms, guide rolls on mercerizing machines, squeeze rolls, loom crankshafts, lineshafts, armature shafts on motors, pump impeller shafts, size kettles, and tanks. The savings made possible by metallizing are indicated by the experience of a Canadian rayon yarn producer who is metallizing 5,000 spindles a year, thereby saving $43,000 annually in cost for replacements.

The spraying of the metal does not greatly change its qualities of compression, wear resistance, corrosion resistance, hardness, heat, and electrical conductivity. However, it does result in a reduction of the density, elongation, and tensile strength; and the metallizing process should not be used where the sprayed metal must be subjected to sharp impact, pounding at one point, or severe strain.

PREPARATION OF PARTS FOR METALLIZING. Steps required in the metallizing of parts and surfaces are shown in Fig. 1. They are as follows: preparation of part to receive the required amount of metal and to provide anchorage; roughening of surfaces to be sprayed to provide additional anchorage; spraying the proper metal on the prepared section; finishing of coating to size and surface required.

Before they are metallized, worn or damaged rolls, shafts, bearing surfaces, etc., require machining techniques, such as undercutting, dovetailing, and/or grooving or slotting. Do all turning of shafts dry and keep free from oil and grease. Use paper to remove the part from the machine. Blow-holes or cracks in parts or flat surfaces require chiseling to make room for extra metal and to provide a dovetail or anchor in the cavity as shown in Fig. 2.

For undercutting or dovetailing, cut away metal from worn shafts, rolls, and bearing surfaces to clean worn section and to provide room for a metal coating of sufficient strength to meet requirements, and make cuts so as to leave a dovetail at each end of cut section to anchor the coating (See Fig. 1). Use metal working lathe and tool bits, and cutting speed generally employed for cast or rolled metal of the type being prepared. Weld beads on ends of shafts and cut and dovetail where end-wear prevents the leaving of a dovetail of the base metal.

Provide additional anchorage to an undercut shaft by grooving around the circumference with a specially ground tool bit that has a rake and clearance standard for the material being cut. Cut grooves 0.025 in. deep and space grooves so ridges between the grooves are 0.015 in. wide, except for cast iron which calls for ridges 0.025 in. wide. Cut only a few grooves at each end of undercut section unless a very strong bond is needed. Cut threads with the same tool bit, setting thread feed at 16 threads per in.—14 for cast iron.

Slot the ends of shafts where it is not possible to cut a dovetail and for bonding at the edges of keyways, slotted rolls, etc., where the surface is to be prepared by blasting. Slot the edges of flat surfaces to be metallized where material is thick enough to provide additional bonding. Milling cutters can be used for slotting shafts, and on the edges of a flat surface a hand or power hacksaw will do.

Roughen metallic surfaces before spraying by blasting with sand, steel grit, special blast material or a special roughening tool for surface preparation of undercut shafts or rolls.

Non-metallic surfaces which are to be metallized must be rough, clean, and dry. For sand-blasting use washed angular sand of a good hardness (preferably silica or flint) from 16 to 20

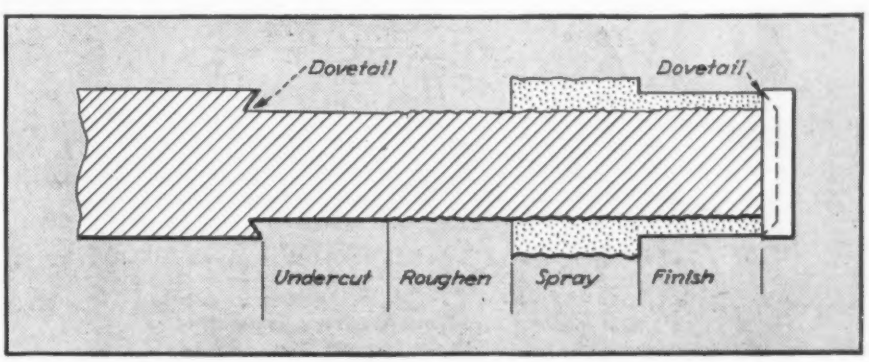


Fig. 1. Diagram of steps in metallizing a shaft.

All sketches Courtesy Metallizing Engineering Co., Inc.

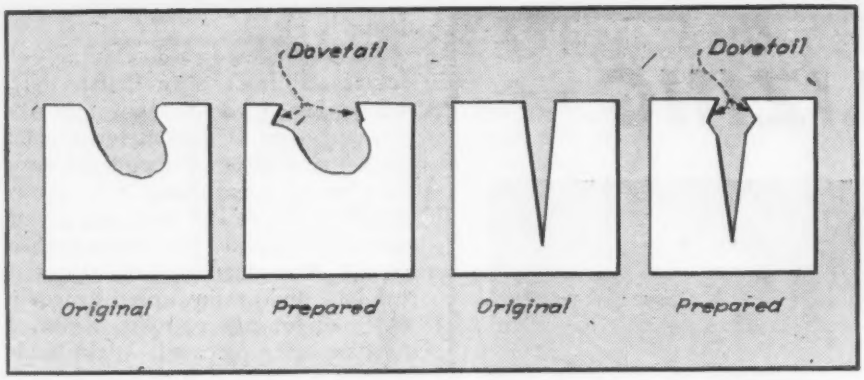


Fig. 2. Proper method of preparing holes or cracks.

mesh where blast material cannot be recovered. Sand finer than the mesh recommended will not give a rough surface, and sand coarser than recommended will make blast cleaning slow and expensive.

Steel grit is usually preferred to sand. Use grit particles Nos. 20 and 30 to secure better roughening, as smaller grit, such as Nos. 40, 50, and 60, results in poorer roughening proportionately. Select the smallest grit size possible which will give the proper roughness, as blasting speed is increased with a reduction of cost.

At least one manufacturer of metal spraying equipment has developed a special blast material which is nonmetallic, rustless, dustless, and almost diamond hard so that it remains sharp as long as particles are large enough to use. It is available in two sizes, is exceptionally light in weight, and can be used with lower air pressure than heavier materials. Hard metal surfaces can be prepared for spraying with this material that formerly could not be prepared. Sheet stock can be prepared without danger of warping.

A special roughing tool is available to prepare shafts for metallizing where grit blasting is not desired. This tool fits in the tool post of a lathe.

SPRAYING TECHNIQUES. The spraying technique employed is selected to suit the requirements of the base material to be sprayed. Cooling of the sprayed metal causes stresses to develop in the coating and the base material which may weaken the bond and distort the coated piece. Stresses increase with the increase in thickness of the coating; consequently, there is a practical limit to the thickness of the coating which can be applied to flat surfaces and inside diameters. However, heavy coatings of the softer metals can be applied without bonding difficulties.

With harder metals, to preserve the bond, cool all flat surfaces and inside diameters; apply coats 0.002 to 0.004 in. thick; and cool each coating before applying another. Use high-grade metal spray wires. Avoid overheating when applying a coating to a shaft; move spray gun away from shaft as it approaches each end of prepared section to reduce the heat and consequently the chance of the coat cracking at the ends.

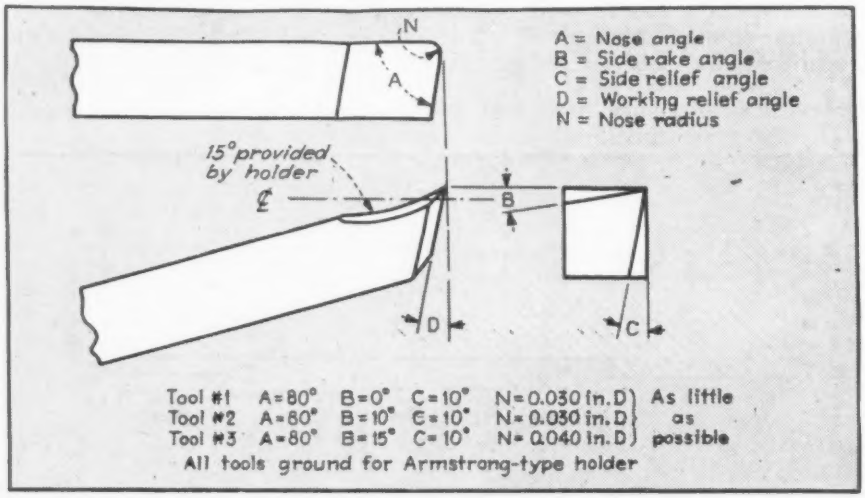


Fig. 3. Tool bits ground at angles for machining sprayed metal.

Spray metal on surface at an angle of 90° where possible and never at an angle of less than 45°. Spray corners first, then follow with frequent quick passes over the full length of the surface when spraying steel.

Adjust the nozzle of the spray gun to insure a neutral flame at all times. An oxidizing or carburizing flame will slow down spraying speeds, increase costs, and lower or increase the carbon content of the sprayed metal.

Techniques for metallizing various types of surfaces are described in detail in the manuals issued by the various manufacturers of metallizing equipment. The following outline is abstracted from the "Operating Manual" put out by Metallizing Engineering Co., Inc.

Spraying Shafts. Mount the prepared shaft in a lathe. Mount spray gun in tool post with the nozzle of gun 5 to 6 in. from the surface of the work. Rotate piece in lathe at a surface speed of 35 ft. per min., and set the carriage feed to about $\frac{1}{8}$ in. per revolution if the piece is over 2 in. in diameter, and a surface speed of 50 ft. per min. with a carriage feed of $\frac{1}{6}$ in. per revolution where piece is less than 2 in. in diameter. These settings can be varied to suit individual conditions.

Spraying Inside Diameters. Spray metal to inside diameters in the same general way for shafts. Adjust r.p.m. of rotating piece so surface speed of inside circumference is approximately 75 ft. per min., and the traverse $\frac{1}{8}$ in. per revolution. Do not apply sprayed metal in one pass of the gun. Inside diameters of $3\frac{1}{2}$ in. are considered the minimum for spraying.

Spraying Flat Surfaces. Change speed of passes of hand gun to suit the thickness of the coating needed and the type of metal used. Unless care is taken, there will be a tendency to apply too heavy a coating of the faster spraying metals. A fan spray air cap spreads the coating more evenly on flat than the standard air cap. Spray one coat horizontally, a second vertically, a third horizontally, etc., to insure even application of the sprayed metal.

Coating Small Parts. Rig gun in end of a tumbling barrel to coat small bolts, nuts, and parts that cannot be economically handled by hand. Provide an exhaust for the barrel to remove fumes and gases. Polish parts by tumbling them with leather scrap before removing from the barrel.

Non-Metallic Surfaces. Non-metallic base materials can be easily overheated, since they do not absorb heat as readily as metal. Coat such flat surfaces first with one of the lower

melting point metals, to draw the heat away from subsequent coats of higher melting point metals. Also, move the gun very rapidly over the surface so that only a light coating is applied, avoiding overheating.

FINISHING SPRAYED METAL COATINGS. The same lathe tools or grinding wheels cannot be used for finishing the sprayed metal as for the pre-sprayed form. Finishing techniques are outlined below:

Machining. Finish ends or corners that are likely to have hard sections with a blunt nose lathe tool, feeding it into the raised section of the coating and not laterally into the curled up edges. A lubricant for the tool of one part cylinder oil to one part of kerosene is beneficial. Set the tool above center enough to reduce the front clearance to a minimum and thus cut or shear the metal instead of tearing out particles. For rough machining, speeds, and tool numbers given in Table I apply to both rough and finishing cuts. Machine to within 0.010 to 0.015 in. of the finished dimension on the first cut taking the balance on the finishing cut, allowing for filing or polishing with every cloth. Tool angles, Fig. 3, are satisfactory for finishing metals in Table I.

Dry Grinding. Special tests have been made to select the proper wheels, wheel speeds and wheel traverse for different metals, and the recommendations of the manufacturers of metal spraying equipment should be followed. Keep wheels from loading by applying a light coat of machine oil to the surface between each cut.

Wet Grinding. Use wet grinding in preference to dry grinding whenever suitable equipment is available. Select a wheel of relativley coarse grain, and low bond strength so that it will break down easily. All sprayed metals tend to load a wheel. Wheels suitable for grinding pre-spray metal will not produce good results on the sprayed metal. Follow recommendations of manufacturers of metallizing equipment as to lubricants, speeds, feeds, traverse, and types of wheels.

Finishing Flat Surfaces. Use a milling machine to finish flat surfaces whenever possible, applying the same tool grinding and setting techniques as are covered under lathe finishing. Shapers and planers can be used by: (1) filing or grinding away raised sections or overlapping flash; or (2) by taking light cuts. Hard metal coatings can be readily surface ground using the same technique recommended for dry or wet cylindrical grinding.

Finishing Internal Surfaces. Inside diameters can be ground easily. If internal grinding equipment is available, it should be used for steels or alloys. Fly cutters mounted in a piloting bar can be employed successfully, providing the flash and overhang of sprayed metal is first removed. Reamers cannot be used unless the hole is previously bored to within 0.005 in. of finished size.

Polishing. Ordinary procedures of polishing can be used if it is kept in mind that the sprayed metal is a thin veneer that is bonded mechanically. Soft metals can be easily polished while the harder metals are more difficult to polish depending on the degree of hardness. White and yellow metals should be applied to allow a thickness of 0.006 to 0.012 in. for polishing. Extra metal should be applied to corners and edges to allow for excessive removal that can occur at such points. Sprayed metals (white, yellow and red) react favorably to wire brushing, and an attractive mat finish can be obtained.

Range of thicknesses and other useful data appears in Table II.

Table I. Chart of recommended tools, speeds, and feeds for machining sprayed metals

Metal	*Tool No. See Fig. 3*	*Speed Surface Ft. per Min.*	*Feed Inches per Revolution*
Aluminum	3	150–200	0.003 to 0.005
Babbitt — A & B (Government genuine: 97% tin, 3% copper)	3	150–250	0.005 to 0.007
Yellow brass	2	100–125	0.003 to 0.005
Aluminum bronze	1	100–125	0.003 to 0.005
Commercial bronze	3	100–125	0.003 to 0.005
Nonfuming bronze	1	100–125	0.003 to 0.005
Phosphor bronze	1	100–125	0.003 to 0.005
Tobin bronze	1	100–125	0.003 to 0.005
Monel metal	3	100–125	0.003 to 0.005
Nickel	3	100–125	0.003 to 0.005
Copper	3	100–125	0.003 to 0.005
Pure iron	3	75–100	0.003 to 0.005
Lead A & B	3	150–250	0.005 to 0.010
Stainless Steel alloy (18–8)	3	100–125	0.003 to 0.005
High-chromium high-carbon stainless	Grind		
Steel (0.10% carbon)	3	75–100	0.003 to 0.005
Steel (0.25% carbon)	2	50–75	0.003 to 0.005
Steel (0.40% carbon)	2	50–75	0.003 to 0.005
Steel (0.80% carbon)	Grind		
Tin	3	150–250	0.005 to 0.007
Zinc	3	150–250	0.005 to 0.007
Steel (1.20% carbon)	Grind		

Courtesy Metallizing Engineering Co.

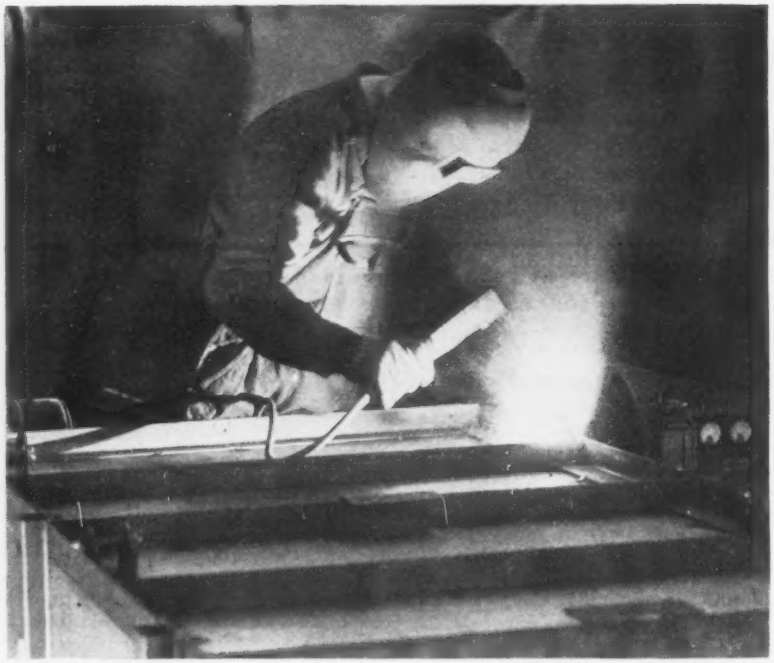
Table II. Metallizing data chart

			Steels	Stainless Steel Monel Metal	Copper Bronzes	Aluminum	Zinc	Lead	Tin
Capacities	Average lb. per hr. for practical purposes	1/8 in. Diam. (0.125 in.)	8	8	15	7	32	60	48
		12 Ga. B. & S. (0.081 in.)	5	5	9	5	17	28	22
Thickness	Range of thicknesses for practical purposes	Atmospheric Corrosion Blast Bond	*	*	*	.003″ to .010″	.003″ to .010″	.008″ to .020″	.006″ to .015″
		Immersed Corrosion Blast Bond	*	*	*	.005″ to .020″	.005″ to .020″	.012″ to .060″	.008″ to .020″
		Worn Areas Machine Parts Tool Bond	.010″ to .250″	.025″ to .250″	.020″ to .250″	.010″ to .250″	*	*	*
Metal Weights	Lb. of metal per 100 sq. ft. to obtain 0.010 in. thickness		47	47	49	15½	45	80	52

* Seldom used.

Courtesy of Metalspray Co.

WELDING



Courtesy of Harnischfeger Corp.

Equipment and techniques for general maintenance and repair of broken parts

By ***FRANCIS A. WESTBROOK***

● Welding equipment has numerous application in textile mills, both for general maintenance work and for the repair and reclaiming of machinery. The equipment is not expensive, especially in comparison with the savings made possible by its use. Although the operations definitely call for skill, the welding art is by no means beyond the capabilities of good maintenance men. Furthermore, there are now plenty of schools, including night schools, where good practices can be learned at small expense. A clear comprehension of what can be done by welding may be obtained by considering specific examples.

In some mills large sized shafts are rotated in water-lubricated journals. As often happens, the journal area of the shaft wears to a considerable extent. Such journals may be built-up with a hard bronze which provides a satisfactory new bearing surface. However, the proper technique must be employed for the application of the bronze. First, the worn surface must be turned down smooth with rounded end corners. Slow preheating by means of a charcoal furnace or oil fire is necessary, with the shaft rotating in order to obtain even heating. When the area to be filled-in is at a dull, red heat extending right through the shaft, the bronze can be applied by an oxyacetylene blowtorch, using a suitable flux. Only a thin layer of bronze should be applied at any one place so as to effect a gradual build-up with comparative freedom from porosity. The shaft is then allowed to cool slowly, thus helping to eliminate hard zones in the steel and the setting up of residual stresses. The journal is turned down to the proper dimensions. Both journal and shaft when placed in service are as good as new for all practical purposes.

Courtesy of International Acetylene Association

Bronze-welding a cast iron bracket from a woolen spinning machine with an oxyacetylene torch.

This example naturally suggests the possibilities of treating many other journals in a similar manner, thus salvaging parts quickly which might require much time to replace under present circumstances.

Increased life and efficiency of many wearing parts of textile machinery is possible by rebuilding the worn sections with the use of steel and cast-iron welding rods. Parts may be heat treated with a blowtorch to impart to the deposited metal the requisite hardness. Ordinary steel and cast-iron rods are suitable for a wide variety of conditions where moderate hardness is called for, or hardness with toughness. Where the operating conditions are extremely severe, with unusual abrasive wear, the standard hard-surfacing alloys are used. It is worth noting that the hardness of a welded deposit may be increased from the normal of 150 to 200 Brinell hardness to that of 400 to 600 merely by varying the amount of acetylene in the flame, with proper quenching and, if necessary, tempering.

FLAME HARDENING. The advantage of flame hardening is that of extreme flexibility in application, which permits machine parts to be hardened only at those points where hardness is desired. This application may be used to harden gear teeth that have been repaired in the mill's machine shop. Flame hardening is also applicable to other machine parts where it is not desirable to harden the core, but merely the wearing surfaces. This hardening is possible because of the speed of heating by means of the oxyacetylene flame, which will heat the surface to hardening temperature before the core is heated to that extent. Another feature of the flame-hardening process is that simple, portable type of equipment may be used for the purpose, which permits the tool to be taken to the work.

Cams, camshafts, and the areas of shafts on which ball bearings run provide other everyday examples of parts that may be successfully flame-hardened. In fact, the extent to which this operation is used depends largely on the ingenuity of the master mechanic.

Mechanical equipment usually available in the repair shop of the average textile mill makes it unnecessary to purchase or build special machinery for flame hardening. A lathe is used with the blowtorch mounted on the tool carrier, and the part to be hardened is mounted on, or adjacent to, the lathe. If the part to be hardened is round, the piece is rotated. When a flat surface is to be hardened, the blowtorch is moved so that the flame impinges on the part to be hardened at a speed which permits immediate heating to the hardening temperature. Behind the blowtorch is a spray of water for quenching. Round parts are treated by the same method, except that the piece is rotated.

An interesting example of practical use of gas welding equipment is found in a large middle-western worsted mill. In this plant the maintenance superintendent has a crew of some 30 men who do nothing but repair machinery. Among other items, these men have a gas welding generator and a torch with which they can switch back and forth between welding and cutting operations with a minimum of trouble. Some loom parts have, under wartime conditions, been quite difficult to obtain and in an emergency the maintenance men have fabricated some of these parts. Fabrication is from plate, rather than from castings, because plate is much easier to obtain. Also much flame hardening is carried out in conjunction with this work.

ARC WELDING. Electric arc welding applications include the welding of mild steel, sheet steel, cast steel, stainless steel, cast iron, together with hard surfacing for resistance to abrasion and impact, and for providing cutting edges. Different types of electrodes are required for various metals and purposes.

Assume, for example, that one of the arms of a roll stand was cracked or broken. It is a simple matter to weld this arm back into place, knowing it to be cast iron and selecting the appropriate welding electrode for this condition. A good welder would find such a job quite simple. In all probability this work may be done at the frame by taking a portable arc-welding machine to the work.

Welding is useful in the building of more or less simple machines for special purposes and for constructing various devices, such as pipe clamps, frames for supporting conveyors, and many of the incidental items needed in a mill.

Another example is the use of a tungsten-molybdenum electrode for building up the edge of a worn shear blade. This metal has properties equal to high-speed tool steel and has air hardening properties. After being deposited on the shear blade, it may be ground to a sharp edge.

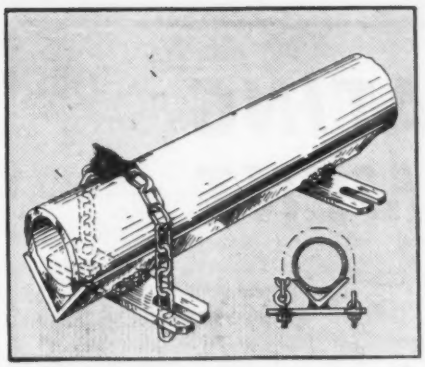


Fig. 1. A clamp for aligning pipe to be welded is easily built in any textile mill machine shop.

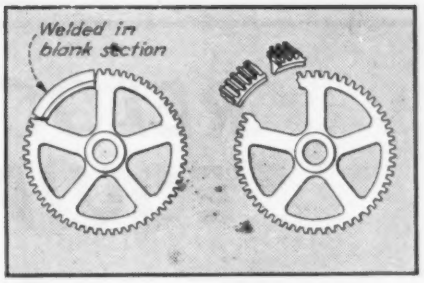
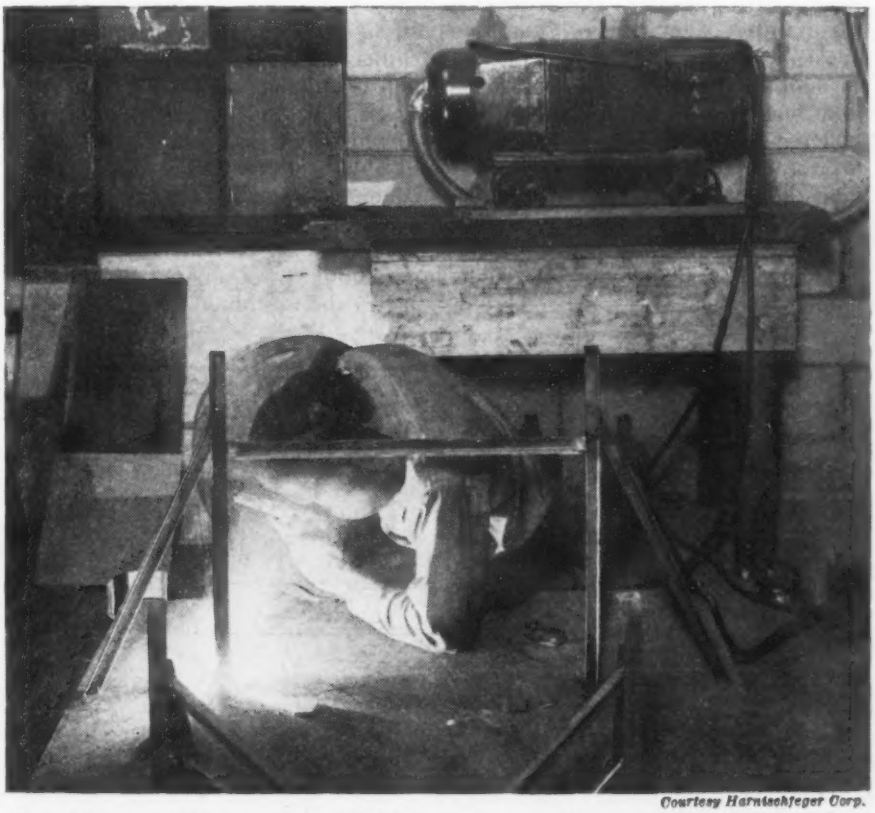


Fig. 2. Method of repairing broken gear. Left: steel blank section is welded into place preparatory to machining operation. Right: parts of broken gearing before welding, showing their position and the break.

WELDING APPLICATIONS. A clamp for aligning pipe is shown in Fig. 1. It was constructed by arc welding in a mill machine shop. Two parallel plates and a piece of angle iron are used. The plates are of a length sufficient to hold a 6-in. pipe. The two parallel plates are welded to the angle iron, as shown. Eyes are inserted in the ends of the plates. When in use, chains are passed over the pipes and into the slots so as to hold the pipes in correct alignment for welding.

The way in which a large gear 7 ft. in diameter and weighing some 2,500 lb. was repaired by welding in a blank section and then cutting new teeth in that section is shown in Fig. 2. This repair represents a considerable saving in cost over purchasing a new gear, and avoided the delay which would have been incurred in procuring a new one.

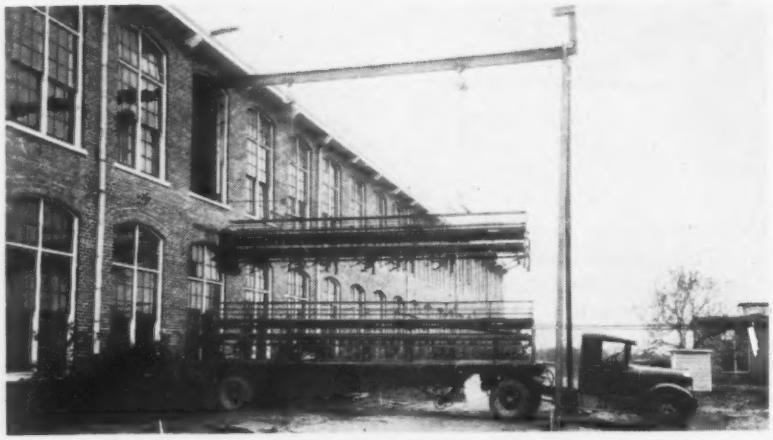
The few examples given are indicative of the many ways in which welding equipment can be employed as an aid to wartime maintenance.



Courtesy Harnischfeger Corp.

Portable arc welder is used for fabricating a support for a vat. A similar procedure may be employed for making supports for other equipment such as conveyors, tanks, etc.

RELOCATING EQUIPMENT



Careful planning, well-trained crews, efficient methods and tools speed changes

● Relocating equipment may involve the transfer of machinery from one department (or part of a department) to another on the same floor level, from one department to another on a different floor level, or from one plant to another. In any event, careful planning should precede the actual moving of the machines. Studies should be made to determine the most efficient layout. Foundations and floors should be checked to make certain they are in good condition and are strong enough to support the machinery. The advisability of contracting for the work with a firm that specializes in moving machinery should be investigated. If this is not feasible, suitable tools and moving equipment should be procured and crews should be trained so that the work can be carried out with the minimum loss of production and damage to the machinery.

Transfer of equipment from one place to another on the same floor level is usually a fairly simple matter. Moves involving the transfer of equipment from one floor to another in multi-story buildings are generally more difficult. If the regular mill elevators are large enough to accommodate the machinery to be moved, the problem is simplified. However, if the existing elevators are not adequate, the machinery must be moved on temporary outside elevators or through trap doors in the floors. Experienced crews are necessary if accidents and damage to the machinery or buildings are to be avoided. As a general rule, therefore, it is better to have such work carried out by professional movers. Unfortunately, this is not always possible, and the mill engineer or master mechanic has to assume the responsibility for the job. The number of machines moved and the distance moved determine the method of skidding, crating, and handling practices. Mill motor trucks of suitable capacity can be used for a few units for short hauls, whereas for longer hauls with a large number of machines, the transfer usually can be made more economically and safely by railroad or heavy trucks and trailers.

Outside elevators can be of the general type used by contractors, or chain falls and slings can be rigged up from steel I beams bolted securely to the mill building. A large factor of safety should be allowed in figuring the size of rope, chain, beams, etc., needed to hoist the equipment, as not only can a machine be totally destroyed by falling, but loss of life can result.

Tools and auxiliary equipment needed include chain blocks, ropes and pulleys, skid rollers, dollies, crowbars, and other special equipment such as hooks, slings, etc., that can be pur-

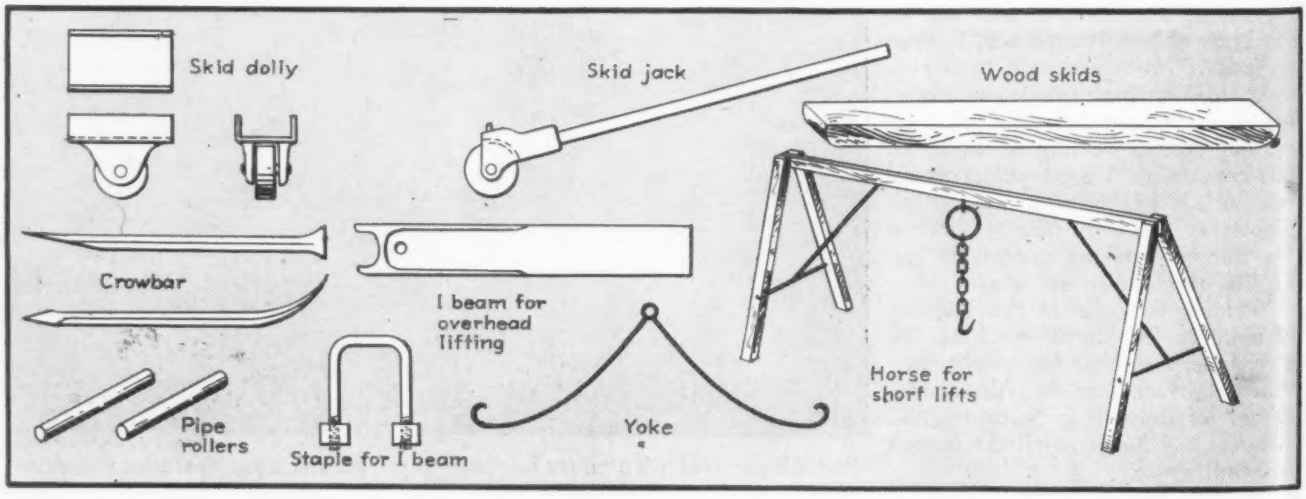


Fig. 1. Standard equipment and tools used for moving machinery.

chased or improvised. An array of standard equipment for moving crews is shown in Fig. 1. Small, powerful, electric trucks are helpful in maneuvering machinery about floors, platforms, up ramps, etc.

Good practices in handling and moving equipment include the following:

Disconnecting. Unfasten and remove flue pipes from opening and picking equipment, coiler heads from cards and drawing, motors and belts, pulleys, etc., from drives; ring rails, counterweights and creels on spinning frames and twisters; and jacquards and harness from looms so as to make the machines less bulky and to prevent damage to projecting parts.

Sectionalizing. Take out individual or conveniently handled units or sections of drawing, fly frames, spinning frames, twisters, cloth shears, calenders, presses, etc. Mark parts and sections of machines, frames, etc., carefully with chalk or paint so that they can be reassembled into the same relative position as formerly.

Skidding. Support all machinery or machine sections on wooden skids before moving. Use lumber free from cross grain, knot holes, large knots, or other imperfections that impair the strength of the material. Skid members used on any one machine should be of the same dimensions, and of sufficient thickness to support the weight of the machine, to prevent warping or distortion of the unit, and to provide ample penetration for the fastenings. Place skids parallel under the machine, so as to extend 6 in. beyond each end of the machine and projecting parts. Join skid members with a cross piece to prevent distortion as shown in Fig. 2. Bevel the ends of the skids members to facilitate handling on rollers. The number of skid members necessarily depends upon the type of machine base. Machines with a flush solid base can readily be supported on two skid members whereas machines with flush flared bases will require additional support, as shown in Fig. 3, to relieve the flares of strain. Substantial decking crosswise on two skid members can also be used for heavy machinery, as shown in Fig. 4. When leg type machinery is top-heavy, crosswise of the machine or when machinery is to be crated and has part projecting from the sides of the machine, a skid unit such as is shown in Fig. 5, can be used to advantage with the legs secured directly to heavy cross pieces. Use bolts for fastening machinery to skids in place of lag screws; never use nails.

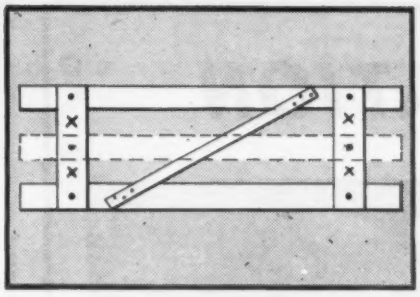


Fig. 2. Typical skid structure with cross members and diagonal brace for leg-type machinery; when legs rest at X, two skid members are needed; when at O, three skid members.

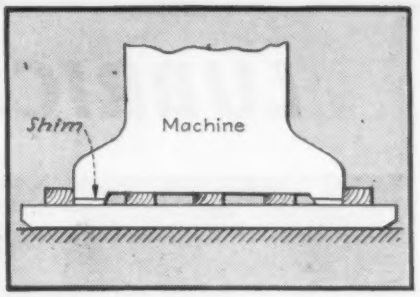


Fig. 3. Method of skidding machine with flared-type bases; shims should be of a thickness which will not introduce a strain into the base; made of soft wood and never drive in place.

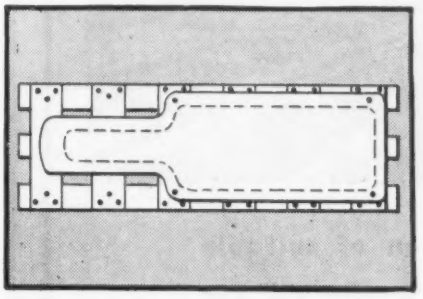


Fig. 4. Decked skid for heavy, compact machinery.

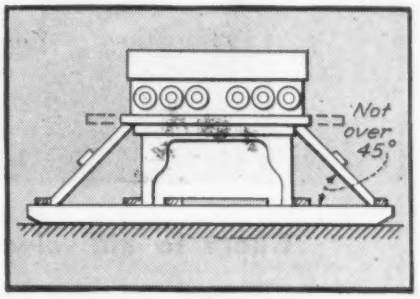


Fig. 5. Skid members and method of bracing top-heavy machinery.

Boxing, Crating, Bracing. Box machine parts removed from units in substantial boxes made of thick, soft wood, such as white pine. Mark boxes with machine number for easy location for reassembly. Crates should be built around any machine to be moved by freight to avoid damage in loading, unloading, or shifting. In some instances, the machine can be braced with boards nailed in a car in such a way as to avoid shock and vibration. Use experienced carpenters on this work, as a poor job allows the machine to be wrecked. Avoid contacting frail parts with horizontal braces that transmit shock. Brace weak parts to the machine itself or remove and crate separately. Allow some bending or give to all bracing, as too rigid a structure is probably the cause of more breakage than no bracing at all. Heavy wire can be used to hold machinery in place, and to prevent sliding.

Moving, Loading, Unloading. To move a machine over the floor, put skids on dollies or pipe rollers, and push it with an electric truck or pull with chain hoist on block and tackle secured ahead of the machine in the direction it is to be moved. Do not place unnecessary strain on any part of machine, and avoid doubling back on any moving haul. Extreme care in handling is important. Provide sufficient help to lift machinery off and onto trucks, rollers, etc. Prevent contact with adjacent machinery, columns, or doorways. When handling machinery on rollers, have at least two under the skids at all times. In loading elevators, trucks, or freight cars, plan the load in advance to provide sufficient room for each machine and provide the necessary blocking at the ends and sides of skids to prevent shifting and contact with adjacent articles. Back blocking with cleats at least 12 in. long. Do not load parts adjacent to machines where a shift will mean damage. Securely block or strap down all loose parts, boxed or unboxed. Although it has been suggested above that machines be separated into sections for moving, it is possible for highly trained movers to transfer whole machines, such as spinning and roving frames, without breaking them down into sections. In such instances, the machinery is placed on steel skids, securely bolted and moved on outside elevators and temporary ramps through doors to the desired position. Cards and many types of dobby and plain looms can be moved without taking down or skidding. Looms are often moved with the warp harness and cloth in place, and without the use of skids by placing jacks and dollies under them and shifting them into place.

After the machinery has been relocated, it should, of course, be aligned and leveled by the usual precision methods.

LUBRICATION

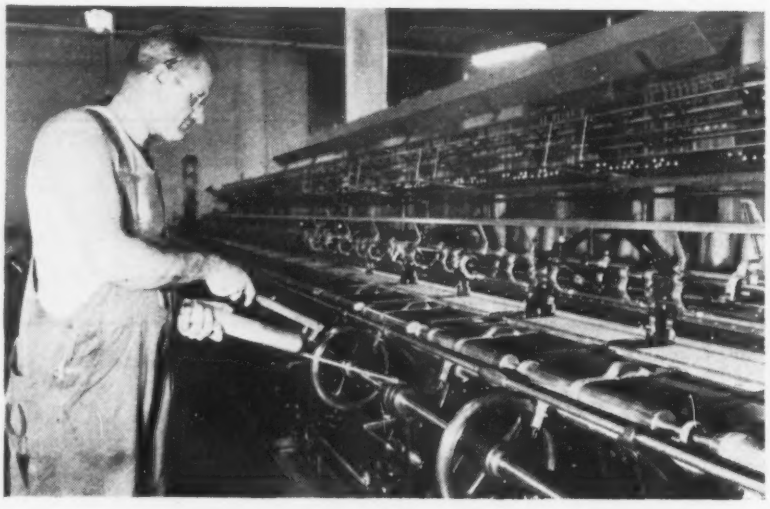


Chart to aid selection of suitable oils and greases for textile mill use

● The accompanying chart has been prepared to aid in the selection of suitable oils and greases for lubricating textile mill equipment. In the left-hand column of the chart are listed many of the more critical bearings and other parts requiring lubrication. The dotted-in portions indicate the viscosity ranges of oils in seconds Saybolt or worked penetration ranges of grease (designated by N.L.G.I. Number), as shown at the top of the chart, suitable for each application.

It will be noted that for some applications a wide range of viscosities is given. Thus, for general-purpose ball or roller bearings, the viscosity range is from 100 to 300 sec. at 100° F. This means that any oil selected for lubricating ball or roller bearings should fall within that range; however, the size of bearings, temperature of the room, speed of machine, and other operating conditions must be taken into consideration to determine whether an oil at the lower end of the range, in the middle, or at the top end of the range should be employed. For other applications, such as general-purpose plain and reservoir bearings, a narrower range of viscosities is given; but here again good judgment and common sense must be exercised in selecting an oil of the proper viscosity within that range.

In some mills the tendency is to use a large number of different lubricants, whereas in other mills a much smaller number is employed. For example, one mill may use an oil in the 90 to 100 sec. range for one application, and a second oil in the 110 to 120 sec. range for another application, whereas a second mill may use one oil in the 100 to 120 sec. range for both applications. It is largely a matter of personal preference whether a mill uses a different oil for lubricating each of these applications or one oil for both.

The viscosity range of an oil or the worked penetration range of a grease does not of itself indicate the quality of a lubricant nor its suitability for a given application. Accordingly, in the right-hand column of the chart are given supplementary recommendations on the nature of the high-quality lubricants which should be used for various purposes in mills.

The editors of TEXTILE WORLD wish to express their appreciation to the various oil companies and other authorities who assisted in the preparation of this chart, and particularly to the engineering staff of the Texas Co., who drew up the recommendations as to the characteristics other than viscosity range and worked penetration range which should be sought for in high-quality lubricants for textile mill equipment.

Lubrication Chart

Parts of textile equipment requiring lubrication	100–130	130–150
Bearings		
Ball or roller, general purpose	●	●
Bearings, plain or reservoir, general purpose		
Bearings, plain or reservoir		
Oil impregnated, general purpose		
Bearings, beamers and warpers		
Plain		
Bearings, beamers and warpers		
Ball bearings		
Bearings, calender, anti-friction		
Bearings, dry cans		
Bearings, fans on dryers		
Bearings, plain, fulling mills, etc.		
Bearings, printing machine cylinder		
Bearings, slasher cylinder		
Calender, hydraulic system	●	●
Calender roll necks		
Comb boxes, new, tight		
Comb boxes, old, worn		
Condenser tapes and rub aprons		
Daubing motion		
Gears and chains		
Inclosed, high speed		
Gears and chains		
Inclosed, medium speed		
Gears and chains, exposed		
Gill boxes, roll necks		
Knitting, circular		
Dial and cylinder needles	●	●
Knitting, circular		
Machine parts		
Knitting, full-fashioned		
Needles, narrowing points, etc.	●	●
Knitting, full-fashioned		
Oscillating motions		
Knitting, full-fashioned		
Coulier motion		
Looms, crank and crank shaft		
Looms, harness and pick cams		
Looms, dobby and worsted heads		
Looms, jacquard		
Head, pump rods, etc.		
Looms, jacquard		
Needle hooks		
Mandrels, printing machines		
Saddles, top rolls, stands		
Spindles, according to speed, type and design	●	●
Squeeze rolls, backwashers		
Tenter frames		
Clip chains and pins		
Tenter frames		
Race ways and expansion gears		
Twister rings or ring twisters	●	●
Winders		
Spindle gear boxes and gainers		●
Winders		
Traverse cams		
Winders		
Worm drives		

ing Correct Ranges and Types of Oils and Greases

Range in Viscosity Seconds Saybolt at 100° F and at 210° F																			Grease-N.L.G.I. No.							Notes
70–100	100–130	130–150	150–170	170–180	180–200	200–220	220–250	250–300	300–350	350–400	400–450	450–500	500–750	750–1200	110–145	Semi-Fluid	No. 00	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	
	●	●	●	●	●	●	●	●										●	●					Highly refined straight mineral pale filtered oil. Special ball or roller bearing grease. Soda-lime base.
						●	●	●										●	●					Straight mineral machine oil. Lime soap cup grease.
			●	●	●	●	●	●	●	●	●													Highly refined straight mineral oil resistant to oxidation.
							●	●	●									●	●					Straight mineral machine oil. Medium soft cup grease.
																		●	●					Soda-lime base ball bearing grease.
									●	●	●	●	●					●	●					Pale colored, straight mineral oil. Soda-lime base grease.
															●									" Bright Stock " straight mineral oil or highly refined petrolatum.
																			●	●				Soda soap spongy texture grease.
								●	●	●								●	●					Straight mineral machine oil, or lime soap water insoluble grease.
															●									" Bright Stock " straight mineral oil.
															●			●	●					" Bright Stock " straight mineral oil. Soda soap base grease of spongy texture.
	●	●	●	●	●																●	●	●	Pale, filtered, highly refined, low pour test straight mineral oil.
						●	●	●																High temperature brick or packaged soda soap grease.
																●								Highly refined straight mineral pale filtered oil.
									●	●	●	●				●								Light grease lime soap base.
																●								Highly refined compounded pale oil.
																●								Liquid grease, lime soap base.
						●	●	●																Straight mineral machine oil.
															●									" Bright Stock " straight mineral oil.
																		●	●					Soft adhesive type grease.
																			●	●		●	●	Nos. 2 & 3 are medium bodied, lime soap water repellant grease. Nos. 5 & 6 are soda soap brick type grease.
	●	●	●	●	●																			Light colored compounded or straight mineral oil.
						●	●	●																Pale colored, straight mineral oil.
●	●	●																						Very light colored compounded oil, or straight mineral oil having ability to be removed from goods easily upon scouring.
					●	●	●	●																Pale colored, compounded or straight mineral oil, resistant to oxidation.
																●								Liquid grease, lime soap base.
									●	●	●	●	●			●								Liquid grease, lime soap base, non-dripping character, or straight mineral oil.
									●	●	●	●	●					●	●					Soft, adhesive type grease of buttery texture.
									●	●	●	●	●			●								Liquid grease, lime soap base, or straight mineral oil.
									●	●	●	●	●			●								Liquid grease, lime soap base, or straight mineral oil.
																								Highly refined, light bodied compounded mineral oil, rust inhibited and non-gumming.
																					●	●		High temperature brick or packaged soda soap grease.
														●		●								Straight mineral oil, pale color, low pour test, or liquid grease, lime soap base.
	●	●		●	●	●																		Solvent refined, dewaxed pale mineral oil; low pour test, highly resistant to oxidation. Viscosity to meet manufacturers spec.
																							●	Heavy lime soap grease.
															●									" Bright Stock " straight mineral oil.
																				●	●			High temperature soda soap grease, spongy texture.
	●	●	●	●	●	●	●	●	●	●	●	●					●	●	●	●				Highly refined straight mineral oil, rust inhibited. Light colored grease, soda soap base, containing medium bodied mineral oil.
		●	●	●	●																			Highly refined straight mineral oil, pale colored.
																		●	●					Soft, adhesive type grease of buttery texture.
															●									" Bright Stock " straight mineral oil.

A.S.T.M. Worked Penetrations	N.L.G.I. Number	A.S.T.M. Worked Penetrations	N.L.G.I. Number
355–385	0	175–205	4
310–340	1	130–160	5
265–295	2	85–115	6
220–250	3		

PAINTING

Chart to aid selection of proper types of paint

● This chart is presented to assist in the selection of proper paints for specific textile mill applications. The paints listed are designated by general types, and each type is available under various trade names. Although different types of paint are required for different surfaces, as indicated by the chart, there are usually several types which are suitable for any given application.

After the type of paint for a specific job has been decided upon, it is important to consider the characteristics desired and to select a brand which has those characteristics. For example, in the selection of a flat wall paint, the following factors should be considered: color, working properties, leveling properties, freedom from settling, character of film, washability, hiding power, and cost.

In any painting or re-painting job, the precautions must be taken to prepare the surface properly, bearing in mind that the finished job is no better than the surface to which it is applied.

It is important that all paints be applied in accordance with the manufacturers' directions.

Due to the shortage of certain raw materials, there is a scarcity of some types of paints formerly employed. However, all the leading paint manufacturers are in a position to recommend satisfactory substitutes for any types listed in the chart which are not available at present.

The editors of TEXTILE WORLD wish to express their appreciation to the various paint manufacturers who have assisted in the preparation of this chart. Finally, it should be stated that the omission from the chart of any type of paint does not necessarily mean that it is not satisfactory for certain textile mill applications, but that the compilers did not have sufficient data on it to permit its inclusion.

Chart showing various types of paint which are suitable for mill walls, ceilings, floors, equipment and other interior and exterior surfaces.

		Types of Paint																				
		Mill white undercoat	Mill white finish	Mill white, fume-resisting	Metal primer	Galv. iron primer	Floor enamel, or varnish	Penetrating floor finish	Decorative enamel	Machinery enamel	Enamel undercoat filler	Primer or sealer	Metal protective paint	Stucco paint	Oil paint primer	Exterior oil paint	Porch & deck paint	Fire red enamel	Asphalt tank coating	Asphalt stack paint	Aluminum paint	Aluminum, heat resisting	Truck enamel
Interior Surfaces	Walls & ceilings, wood	●	●																		●		
	Walls & Ceilings, brick, concrete	●	●									●									●		
	Laboratory walls & ceilings	●		●								●											
	Metal partitions, lockers, etc.				●				●	●			●				●				●		
	Structural steel beams, columns	●	●		●																●		
	Steel sash	●	●		●								●								●		
	Wood floors						●	●															
	Concrete floors						●	●				●											
	Piping, water, air, conduit				●								●					●			●		
	Piping, steam, hot water				●								●									●	
	Radiators				●				●	●			●				●					●	
	Machinery & equipment				●					●	●						●				●	●	
Exterior Surfaces	Structural steel				●								●								●		
	Ornamental iron, fire escapes				●								●								●		
	Concrete & brick walls											●		●									
	Wood structures														●	●							
	Porch floors														●		●						
	Wood sash														●	●							
	Steel sash				●								●										
	Hydrants & fire equipment				●													●						
	Metal tanks				●								●						●		●		
	Metal stacks				●															●		●	
	Concrete stacks											●		●									
	Galvanized steel work					●							●										
	Trucks				●					●													●

Free Enterprise

WHAT IS IT? HOW DOES IT WORK?

☆

Ours is a free-enterprise economy the chief motivating forces of which are the prospective rewards for effort and risk-taking. Its smooth operation depends: first, on adequate incentives for risk-taking, innovation, and individual effort; and second, on sufficient competition to minimize the need for government regulation and to prevent artificially high prices or wages from being maintained in large segments of the economy. Trouble comes when these incentives and this competition are tampered with or removed.

America was founded by men who had the urge to better themselves and the courage to take a chance. These men uprooted themselves in Europe and braved the unknown. They risked all for freedom. They knew that, to be free, they had to attain economic freedom. Their goal was an economic freedom which permits the private ownership of property, the free choice of jobs, and free entry into entrepreneurial pursuits. Their efforts, therefore, were directed toward individual opportunity with no limit on individual achievement. Their foresight and the endeavors of those who followed them created the world's greatest industrial nation enjoying the highest standards of living.

We can take pride in the knowledge that our country has been the greatest single contributor to the world's physical assets even though we remember that an abundance of natural resources contributed materially to America's economic development. But the fact that our progress has been interrupted, again and again, by depressions which resulted in enormous wastes of our human and material resources is sobering proof that our economic mechanism still is far from perfect.

Our production per man-hour has been increasing at the rate of 2½% per year. Improved machines and greater efficiency have more than tripled the output per hour of work since 1900. Looking to the future, this annual rise indicates that our production per hour of work will double in the course of the next 25 to 30 years. This means that we can have twice our present volume of goods and services per capita or an equivalent combination of more production and more leisure. In other words, we can further increase the living standards and further decrease the working hours of the American people by further intensifying our industrial efficiency.

This is no idle dream. It can be achieved, and it will be achieved, if only we maintain the essential features of our system of individual enterprise which alone makes possible this near-utopian goal. Intensification of our efficiency, however, means that we can have full employment only if we expand enormously our production, and particularly our production of new goods. We can expand total production only if we have the markets and the demands for the vast output of goods and services made possible by our technological development. To attain these, we will need to venture into new markets, new inventions, and new methods. Such ventures involve risks, and risks will be taken only if there is sufficient prospect of reward.

Let us never lose sight of the fact that the essential features of free enterprise are the prospective rewards for risk-taking as well as for effort.

The evidence is clear that incentive methods of wage payments will boost production. Carefully devised systems of salary payment with large differential inducements for superior performance have been powerful means of raising the standards of managerial accomplishment.

Free enterprise cannot operate effectively unless the wage and salary system offers greater rewards for greater effort. Neither can it operate effectively unless the prospects for profit are sufficient to encourage the employment of resources which otherwise would be kept idle.

Unless the prospects of profit are superior to the prospects of loss, new ventures will not be undertaken and going concerns will not expand or continue long in business. When the hope for profits wanes, employment and production slump; when that hope revives, employment and production recover.

Business initiative must be given every possible in-

ducement in order that maximum employment may be achieved through private enterprise. This involves the removal and avoidance of restrictions on business by government, by labor, and by business itself.

Competition is the life-blood of the free enterprise system. Business and industry must rely upon efficiency rather than upon protection from competition for their survival.

Those government controls which were made necessary during the war by the magnitude of government demands for goods should be lifted at the earliest possible moment. As soon as the danger of inflation has receded, price controls must be removed and profit margins again left free to be determined by market forces. The excess profits tax must be repealed and the burden of other taxes on business profits greatly reduced. Tax laws should be revised so as to permit adequate rewards for assuming risks. The modernizing of anti-trust laws and their vigorous enforcement, not indiscriminate persecution, will be supported by all who really want free enterprise. Such measures will strengthen the incentives to expand old businesses and to start new ventures.

Grants of unlimited monopoly powers to labor unions which enable them, consciously or not, to sabotage the profit incentive in business must be withdrawn. Labor has certain legitimate rights; and in order to preserve them and its freedom, labor must come to realize that its best interests lie in a well functioning, self-disciplined competitive free-enterprise economy.

There must be evolved in the minds of business, labor, and the public a recognition of the need for private business enterprise and a realization that policies which throttle it are harmful not only to businessmen but to workers and consumers as well. Unless we achieve this understanding and avoid needless deterrents to business expansion, we are likely to pay for our folly in the destruction of our free enterprise system.

We cannot tolerate conditions in which special interest groups in business, labor, agriculture, or politics prevent free access to the market by would-be competitors. Such monopolizing of opportunities stifles progress and creates profits or wage rates based on artificial scarcity. In such cases government interference to open the market to all comers is clearly indicated. We must recognize the need for constructive policies by business, labor, and government which will insure the competition necessary for the successful operation of our economy.

Increased government regulation and control of business activities is not conducive to strengthening the virility of private enterprise. Government ownership and operation of productive resources certainly is not to be condoned. The more government rules and regulates business, the less will be the incentive to assume risks and to exercise individual initiative. Government regulation of the detailed operation of industry inhibits progress, is prey to political pressures, and is subject to the human failings of its administrators. *Better far the rough guidance and justice of vigorous, though somewhat imperfect, competition than the uncertainty of arbitrary regulation.*

The gravest threats to our competitive system exist in legalized monopolies, such as the N.R.A. once comprised, such as the labor unions and farm groups have recently achieved, such as businessmen themselves have sometimes sought. The power of labor monopolies to encroach on business profits will tend to interfere seriously with the needed flow of new investment. And when any group is strong enough to move the average level of costs as much as the labor groups and the farm groups are able to do, there is good reason to fear that, when we begin to approach high levels of employment and production in time of peace, these groups will induce a price-wage spiral which will waste money incomes on price increases instead of permitting them to draw unemployed resources into production. While the demands of labor for collective bargaining rights and the demands of farmers for protection against the rigors of depression have validity, there can be no reason for excessive grants of power and privilege which threaten to make our system of free enterprise unworkable.

Ours is a complex economic structure. The functions which prices, income, savings, investments, and taxes play in this system are difficult to comprehend.

As I have said before: Thinking is hard work, and we will have to work hard if we are to develop business policies, labor policies, and government policies which will insure full employment and the opportunity for consistent profit. Yet only through such policies can we guarantee that private enterprise will be the predominant source of jobs, income, and production.

Even more difficult than thinking, and more important, is the implementation of many policies that are in the interest of the free enterprise system. Not all measures will satisfy all people. Special interests will have to be subordinated to the total interests of the nation. Sacrifice and vision have been essential to the winning of the war. They will be no less essential to the winning of the peace.

If we can gain recognition of the crucial role of incentives for enterprise, if we stand squarely for competition and against protection or privilege for special interests, and if we bend our efforts to find satisfactory ways and means to prevent large-scale unemployment, we can have the full benefits which only a free enterprise system can produce—in industrial progress, in improved standards of living, and in the preservation of our democratic ways of life.

President, McGraw-Hill Publishing Company, Inc.

TEXTILE EQUIPMENT NEWS

Burr-Crushing Machine

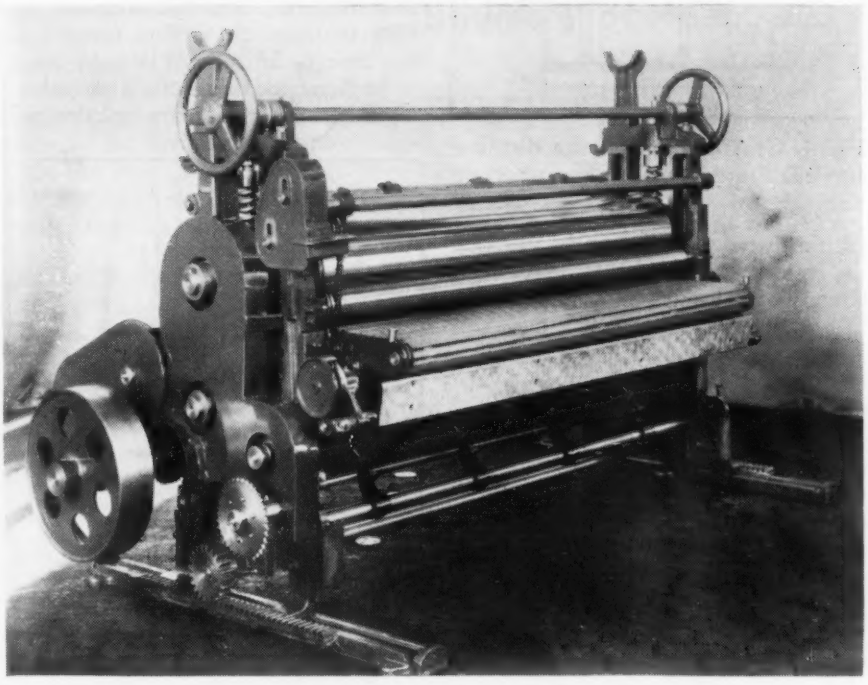


Fig. 1. Peralta machine for crushing burrs and foreign materials. (Duesberg)

Increased output and improved quality of product have been reported by several woolen mills which have made recent installations of the Peralta machine introduced to this country by Hubert G. Duesberg, 7 Wiswall Circle, Wellesley, Mass. This device, which is installed as an adjunct to woolen cards, is designed to crush to a readily removable dust or powder burrs, straw, pieces of hard skin, tar lumps, and other impurities present in the web as it leaves the doffer of the intermediate card. First developed in Europe, the Peralta machine was introduced to this country by Mr. Duesberg, by whom it is patented, and is being made for him by B. F. Perkins & Son, Inc. At present it is available only to such mills as are able to obtain priorities.

As can be seen from Fig. 1, the Peralta machine consists essentially of two cylinders made of tough steel and smoothed to a tolerance of 1/1200th in. The cylinders revolve on roller bearings. Pressure of the upper cylinder on the lower cylinder is adjustable, a dial indicating the pressure obtained. The method of applying the Peralta machine to a woolen card is shown in Fig. 2. Overall length of the device is 3 ft. Speed is synchronized with that of the card by driving it from the card cylinder.

In operation, the web leaving the doffer is passed between the two cylinders. The high pressure exerted by the cylinders crushes the burrs and other foreign bodies to a powder, but does not injure the normal wool fibers. The crushed bodies drop out when the web is passed on to the next card. Because of its effectiveness in removing foreign material, the Peralta machine permits use of lower grades and cheaper stocks to obtain yarns and fabrics of better quality. With some stocks carbonizing can be eliminated. Card speeds can be increased up to 10%, since a heavier sliver can be made for equal counts of yarn. Further, spinning speeds on mules and frames can be increased up to 20%, and labor costs reduced, due to the fact that there is a reduction of about 75% in yarn breakage. It is stated that the yarns are more even and have a higher average tensile strength because there are no weak places. Dyeings are said to be more uniform, and the finished fabric is improved in appearance and handle. The necessity for burling or specking is eliminated or greatly reduced. A number of mills which first installed a single

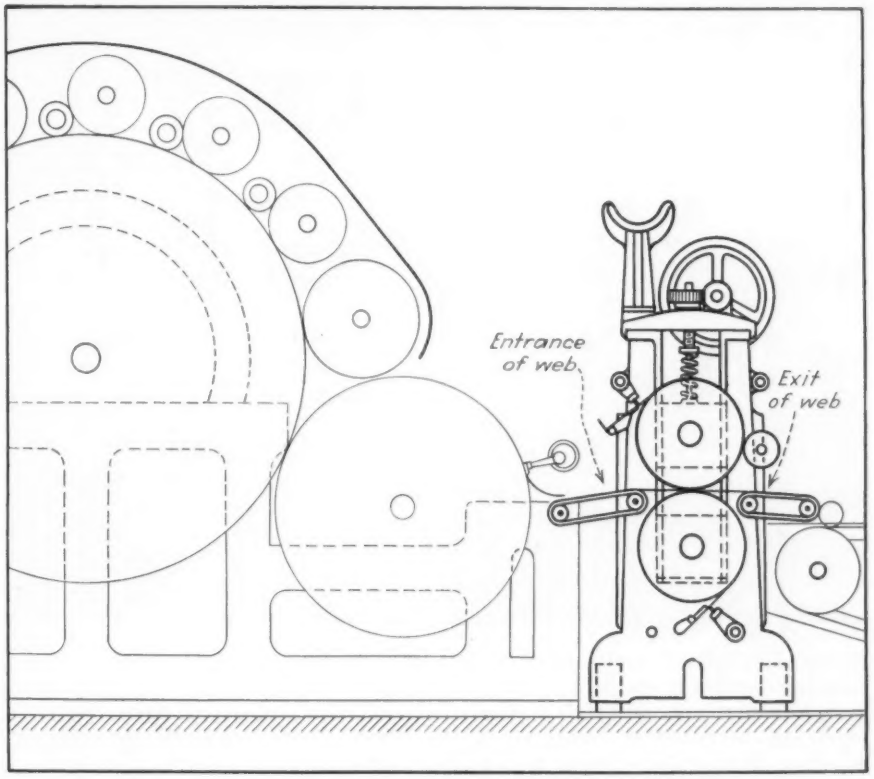


Fig. 2. Application of Peralta machine to a woolen card.

Peralta machine have put in several additional units, and one plant now has a total of 17 in operation.

Pneumatic Set Controller

Intended for controlling applications where the set pointer of the controlling mechanism must be automatically adjusted in relations to some variable condition, such as in air conditioning where a fixed temperature ration between outdoors and indoors must be maintained, is a pneumatic controller being offered by Taylor Instrument Cos., Rochester, N. Y. This instrument may be used for various control purposes about textile mills and finishing plants. Record charts for reference purposes are made of all changes over a time-period basis.

Improved Rake Distributor

Adoption of an improved rake distributor as standard equipment for automatic feeding system machinery, has been announced by Saco-Lowell Shops, 60 Batterymarch St., Boston.

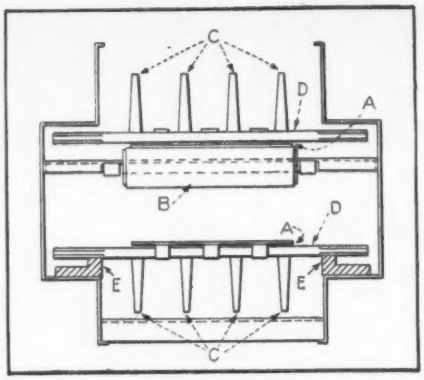


Fig. 1. Cross-section of rake distributor showing method of supporting belt.

Also, this type of rake can be installed on existing equipment without major alteration on trough or assemblies.

It is stated that the new rake will maintain alignment and proper tension over a longer period than the older type of rake which consisted of the rakes being attached to steel chains. The improved rake distributor consists of a special three-ply rubberized duck belt *A*, Fig. 1, which rests on top of a series of idler rollers, *B*. The fingers *C* are grouped in series of four on a hardwood strip *D*. On the bottom, or tight side of the belt these strips are supported on hardwood runners *E* which maintain a uniform clearance between the ends of fingers and the bottom of the trough and eliminates belt sag.

A series of leather straps *F* fasten to the top and bottom of the wood strip *D*, Fig. 2, hold the strip to the belt. The leather straps allow the fingers of the rake a limited amount of movement, but still sufficient rigidity to move the cotton forward in the trough. If a finger should break or be damaged, this method of anchoring the rakes permits easy replacement.

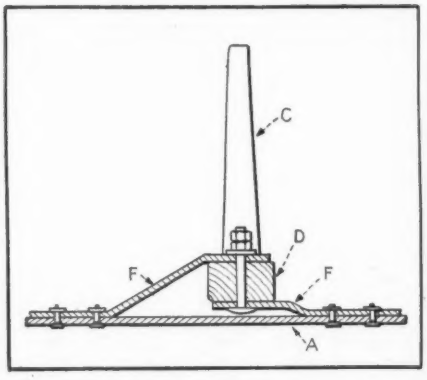


Fig. 2. Method of fastening rakes to belt.

Fading and Aging Lamp

Development of a simulated sunshine generator which closely approximates standard summer sunlight through a combination of 15 lamps of various spectral energy emissions, is announced by Hanovia Chemical & Mfg. Co., Newark, N. J. This light source may be used for accelerated fading, aging and weathering tests, such as are conducted in the testing of textile fabrics and dyestuffs.

Radiation covers an area of 1,256 sq.in. which is equivalent to a circle of 40 in. dia. Compared with data on June sunlight at 40° north latitude, the simulated sunlight generator provides somewhat less ultraviolet and visible radiations and about twice as much infra-red radiations as does standard sunlight, according to tests.

Koroseal Lining For Tanks

A method of bonding solid sheets of Koroseal directly to the welded steel, wood, or concrete of tanks, and thus extending the application of tank linings into fields which rubber cannot handle because of physical limitations, is announced by B. F. Goodrich Co.

Principal advantage of Koroseal in

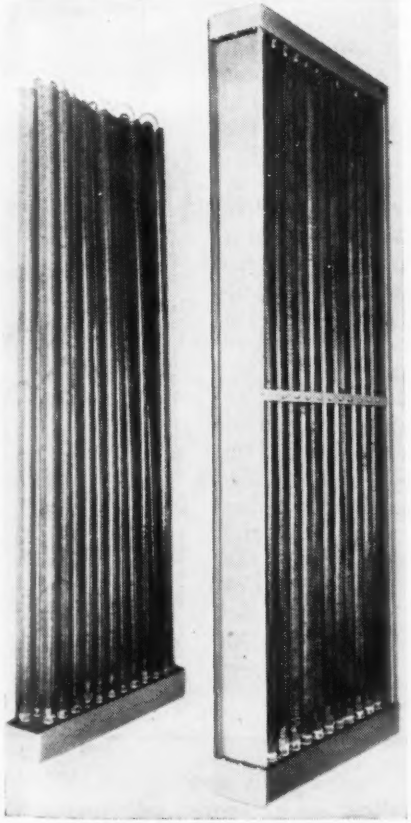
AUTOMATIC DOOR OPENER AT WEST POINT

Courtesy General Electric Co.

PHOTO-ELECTRONIC door opening device used by West Point Mfg. Co., Langdale (Ala.) Mill, to automatically open and close double-sliding door. Allows uninterrupted passage of load, or person, and saves time previously lost in opening and closing doors. The door mechanism, developed by Stanley Works, New Britain, Conn., incorporates an automatic adjustable time delay on closing and can be adapted to swinging doors. This device is especially valuable where humidity is to be controlled. Photo-electric cells are shown in the illustration at either side of the door.

tank lining is its corrosion resistance because of the inertness of its compounds to strong corrosives such as chromic and nitric acids, which have a deteriorating effect on rubber. The material has certain limitations, both in temperature ranges and effects of various chemicals on it, and because of this it is essential that company engineers be furnished complete service details before the material can be recommended. The new linings, made in sheets, are three times thicker than an earlier type, which employed fabric backing. This increase in thickness permits the lining to withstand physical damage much better. It can be applied in thickness up to and including $\frac{3}{32}$-in. It is not subject to physical damage and pin hole leaks suffered by many corrosion resistant paints.

NEW HEATING COILS FOR TENTERS AND CONDITIONERS



INTENDED FOR USE with Fleet Line of tenters, dryers, yarn steaming and conditioning machines, is a new type heating coil developed by Riggs & Lombard, Inc., Lowell, Mass. A return bend with the bend floating on top has been incorporated in the coil. This construction eliminates stresses and strains caused by expansion and contraction and correspondingly reduces upkeep. The coils are fastened at the bottom with standard flared tube fittings. Each individual coil can be removed for repairs, the holes can be plugged, and the heater can still be used.

New Dyes and Chemicals

Starch With Unique Properties

Development of a new starch having unique properties has been announced by National Starch Products, Inc., 820 Greenwich St., New York. This starch, called Amioca, is derived from a variety of corn known as waxy maize. Amioca differs from ordinary cornstarch in that it contains no amylose but consists entirely of amylopectin, the characteristic properties of which are clarity, stability in solution, lack of tendency to gel, and adhesiveness. An important result of the fact that Amioca contains no amylose is that modified products, such as thin-boiling starches made by wet acid hydrolysis, retain the fluidity and non-gelling character of the original starch.

It is believed that Amioca will find application in the textile industry as a replacement for tapioca and potato starch and for other purposes.

Mildewproofing Agents

Development of several new mildewproofing agents has been announced recently by Gallowhur & Co., Inc., 250 East 43rd St., New York. These include Puratized Process Formulations N5-X, N5-D (both specifically designed to meet Government specifications), and N5 (which will be available for processing of civilian fabrics when the necessary chemicals are released). These formulations can be introduced into the material by way of the aqueous phase or oil-in-water type of emulsion and then insolublized in situ in the fibers at a temperature range upwards of 200° F. The Puratized N5-X formula can also be introduced into the feed-water in the finishing plant to destroy any bacteria or fungi present.

Another product is Puratized LN, which can be introduced into fabrics by way of hydrocarbon or organic solvents or emulsions. The material so treated need not necessarily be dried at elevated temperatures.

Puratized PC can be used for treating such products as viscose rayon, acetate rayon, and alkali-soluble cellulose finishes to make them lastingly antiseptic. Puratized B2 is prepared in solid form and is primarily intended for use in dispersions in conjunction with fireproofing or pigmented finishes for textiles.

Tall Oil

Two types of tall oil have recently been introduced to the textile industry by Industrial Chemical Sales Division of West Virginia Pulp & Paper Co., 230 Park Ave., New York. These oils, Liqro and Indusoil, have been employed for some time in a limited number of mills and by several manufacturers of textile soaps and oils, but heretofore have not had widespread use. Crude tall oil is a clear brown oil containing three chief classes of compounds: (1) fatty acids; (2) rosin acids; and (3) non-acids, including sterols and higher alcohols. Liqro is a refined tall oil containing 45 to 50% fatty acids, 42 to 48% rosin acids, and 6 to 9% sterols, etc. Indusoil is a more highly refined compound containing 55 to 60% fatty acids, 34 to 38% rosin acids, and 6 to 10% sterols, etc. Both Liqro and Indusoil can be saponified readily to form soaps having good detergent and emulsifying properties. Also they can be sulphonated. Among the textile applications for tall oil soaps are included scouring of wool, cotton, and rayon. Tall oil soap is said to give excellent results in scouring when water of zero hardness is used, and good results when the water contains only a few degrees of hardness. Possible use of unsaponified oil is for a fiber lubricant.

One of the outstanding characteristics of tall oil is that it can be saponified quickly and without boiling. Thus, one method recommended for preparing tall oil soap is as follows: (1) Heat the tall oil to about 175° F. until any crystals have dissolved. (2) Heat requisite amount of 30% caustic soda or caustic potash to 175° F. (3) Slowly pour the hot caustic solution into the hot tall oil with slow agitation. Mechanical agitators should operate at slow speeds and should be well submerged to prevent entrainment of air. (4) Add enough water at 175° F. to bring the soap to the desired water content. If no water is added, when using caustic soda, an 80% soap results; using caustic potash, a 74% soap. (5) Continue agitation.

KINKS & SHORT-CUTS

A $25 War Bond

for your

IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any item submitted. Items which are published will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

THIS MONTH'S PRIZE WINNER

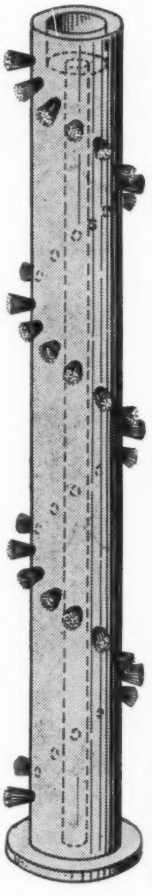
Brushes for Cleaning Spinning and Twisting Rings

● The usual practice in cleaning and overhauling spinning frames is to take frames in a regular order; scour the rolls, clean the rings by boiling, realign the frames and roll bearings, and reset the spindles.

Some time ago, however, the writer took charge of a mill having about 100,000 spinning and twisting spindles, where there was no equipment of any description for cleaning the rings. It appeared that we were in a bad spot and that it would be some job to get the rings into a good, clean condition. After considering various expedients, I hit on the following method.

First, I had some bobbins made into brushes by a brush maker, as shown in the accompanying sketch. The tufts are set spirally making about two turns on a 7-in. bobbin. The bristles are of the same type as are used in regular floor brushes and are of sufficient length to make a brush slightly larger in diameter than the rings. A cork insert is placed in top of the bobbin to insure a good fit on the spindle.

Each spinner is given a dozen spindle brushes. To do the ring cleaning the spinner breaks back the ends on the spinning frame, places the twelve brushes on as many spindles, and leaves the frame running while she goes about her other work. The spinner comes back to the frame being cleaned at intervals and moves the ring brushes to other spindles on the frame until the entire job is done. This system of cleaning is inexpensive and effective, leaving the rings thoroughly cleaned and brushed. Similar brushes proved effective on twister frames—Robert Burgess, *Brookline, Mass.*



Brush made from bobbins is employed for cleaning rings on spinning frames and twisters.

Filling Stop Motion Adjustment

● Improper adjustment of the filling stop motion can prove costly—almost as much perhaps, as the faulty adjustment of the eccentric motion. In my last five years of loomfixing I have never started up any warp without first adjusting the filling stop motion to the new weave and construction. This has saved me much work and the weaver some trouble, as this adjustment prevents false stops and keeps broken picks from weaving over.

Many mills weaving woolen goods allow several broken picks per cut of cloth. There should be no broken picks, however, since the center filling stop motions if properly adjusted will stop the loom every time the filling breaks no matter if the break occurs past the filling stop motion.

Adjustment of the center filling fork to the weave is particularly important and is a point very often disregarded by fixers. By studying the cross section diagrams of the 4/1 and 1/1 weaves it can be seen that the

(*Continued on page 134*)

CONSERVE PAPER

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●

There need be no shortages of necessary paper or paper products – if America goes ALL OUT to conserve and salvage PAPER.

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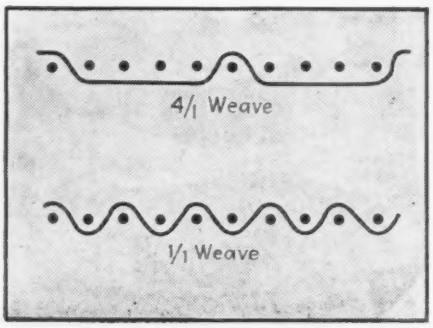
DEPENDABLE SOURCE OF SUPPLY

KINKS & SHORT-CUTS

(Continued from page 132)

filling in the 4/1 weave is slack while the filling in the 1/1 weave is tight. Fixers seldom take these differences in weaves into account when making adjustments on filling forks, with the result that false stopping of the loom is caused when the weave is a 4/1 and broken picks weave over when the weave is a 1/1.

I first learned about the proper adjustment of this center filling fork



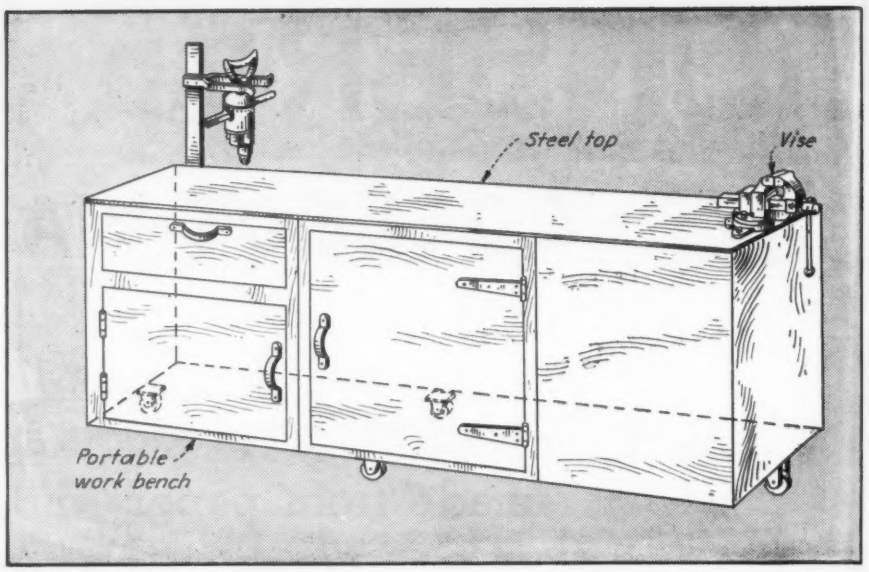
Weave diagrams showing differences in filling contraction that must be adjusted for on stop motion.

when a weaver complained about the looms in our section stopping off. In solving the problem I found one loom that was never stopping false, and I studied in detail the adjustments required. On this loom I noticed that the slots into which the feeler wires drop had been made deeper than they originally were; thus the wires had to carry the filling deeper into these slots to stop the loom. I did not attempt to cut these slots deeper in the other looms, but found that by adjusting the wires to go further into the slot to stop the loom that false stops were eliminated—F. H. B. (Mass.)

Making Spindle Washers

● Spindle washers on looms equipped with rawhide pickers are necessary to increase the life of bumper straps. If the washers are of inferior grade, the picker spindle wears a large hole in this leather after a few hours. This large hole often traps the picker, or the leather is ground to fragments that fly into the cloth. In either case, time and money is wasted.

Worn leather bumper straps are a possible source of long-wearing washers, and provide a means of conserving leather. The management should supply each section with a large gasket punch so fixers can make use of this excellent leather for washers. The undamaged section of the bumper-strapping is used for this purpose, by cutting out all available parts of leather large enough to serve as washers with the large gasket punch. Regular spindle leather-punch is used for making the center hole.—W.H.B. (Pa.)



Portable Work Bench

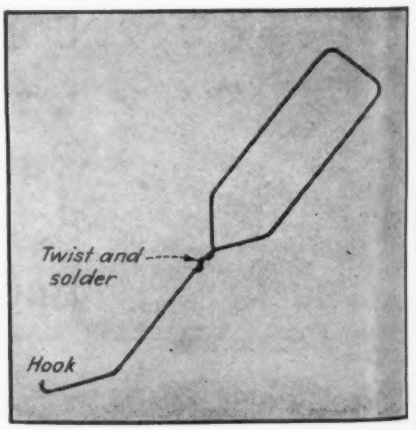
● Saving steps is just another money saver, and reduces fatigue. In view of this, many times jobs require much work to be done on a certain machine, or group of machines that are adjacent, and the work bench and vise are many steps from these machines that specific work must be done on.

Our means of coping with this problem is with a portable work bench, on wheels, fully equipped with electric drill and post, vise, and a steel or cast-iron covered top (a piece of sheet iron ¼ in. thick, and large enough to cover the top). This prevents the cutting of the top with cold chisels, knives, etc. These benches are not expensive to build, and pay for themselves in a short time. The drawers and shelf room serve as emergency storage space for keeping tools that are needed.—Lamar Fogel (Va.)

Handling Mildew-Proofed Burlap Safely

● Laboratory tests and fire experience indicate that mildewproofing of burlap in accordance with certain government specifications introduces a spontaneous heating hazard. The following precautions to prevent fires in this material are recommended in a recent issue of "Factory Mutual Record" publication of the Associated Factory Mutual Fire Insurance Companies: Avoid leaving burlap on dry cans overnight. Operate dryers without excessive temperatures or leaving burlap in dryers for abnormal periods. Set aside for several days' observation any burlap unavoidably exposed to excessive temperatures.

Knitting Machine Threader



Hook made of piano wire for threading knitting machines.

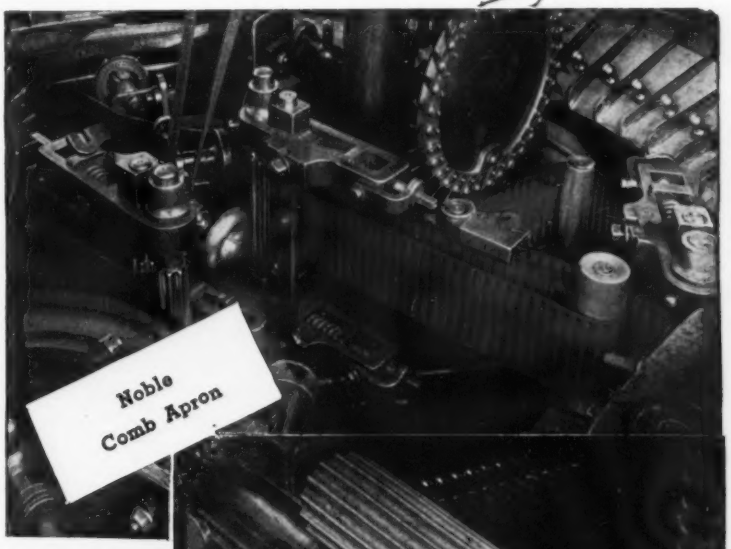
● For speeding up and making the yarning operation on a knitting machine easier, the threader shown in the sketch can be easily made from a piece of piano wire. To make the threader take a length of piano wire and bend one end to form a handle and the other end to form a hook.

(Continued on page 136)

WORSTED APRONS

FOR BRADFORD COMB AND GILL BOXES

are Fussy Things



Not only must they be of even thickness throughout, have minimum stretch, run straight, and have waterproof laps which are strong, flexible, and of even thickness overall—as in all Barnes aprons—they must provide a certain fussy relation between their surfaces and the wool fibers which they grip. The aprons must grip the wool gently but firmly and carry it forward in just the manner which assures a properly made yarn.

Does it strike you as strange that so many attempts to produce satisfactory aprons from substitutes and even from the best leathers by inexperienced hands have failed? It shouldn't, because the fussy relationship of which we speak can be attained only through long research and many years of experience in worsted problems.

Barnes buys the right leather and gives it the right processing. Our apron leather is tanned from finest Foreign and Premium Domestic Steer Hides in our own tannery, and only the most selective hide area is used, clear of all hide imperfections.

Barnes' aprons are hand processed throughout and are thoroughly seasoned before shipping.

HENRY K. BARNES COMPANY • SALEM, MASSACHUSETTS

BARNES THE *Textile Leather* HOUSE

SINCE 1876

Where unusual knowledge of Leather is combined with long years of Textile experience
APRONS—BELTING • FLAT • ROUND • & ACCESSORIES—STRAPPING

KINKS & SHORT-CUTS

(Continued from page 134)

Solder the end twisted to the shank at the base of the handle.

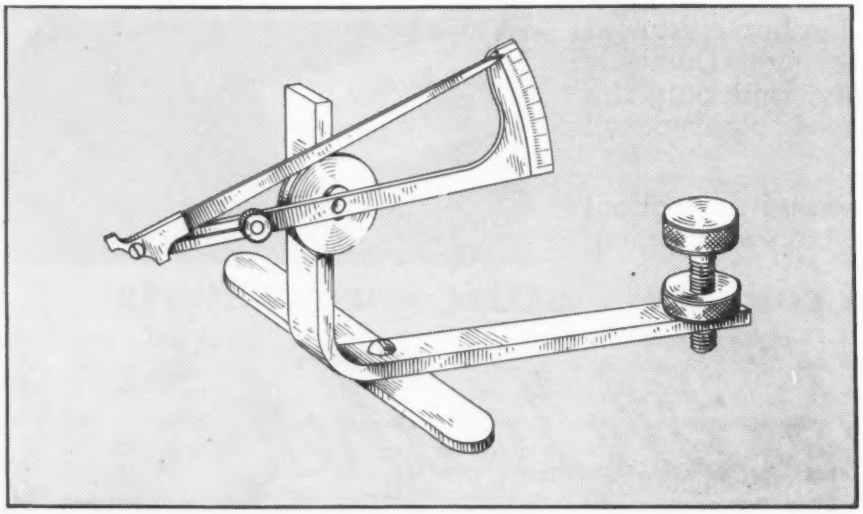
To use the threader, push the hook through the yarn guide, catch the yarn across the hook, and pull it through the guide.—G. M. (Wis.)

Universal Test Gage Holder

● This gage holder was first designed to test the casting-off points of stitch cams after they were secured in the cam cylinders; thus to prevent washboard knitting in the heels and toes. It will be found useful in many other tests where the working space is limited. Its advantage over the surface gage is that in testing knife edges the indicator stands exactly vertical. This is very important when clamped on square surfaces for tests where thousandths of an inch are vital for the best results.

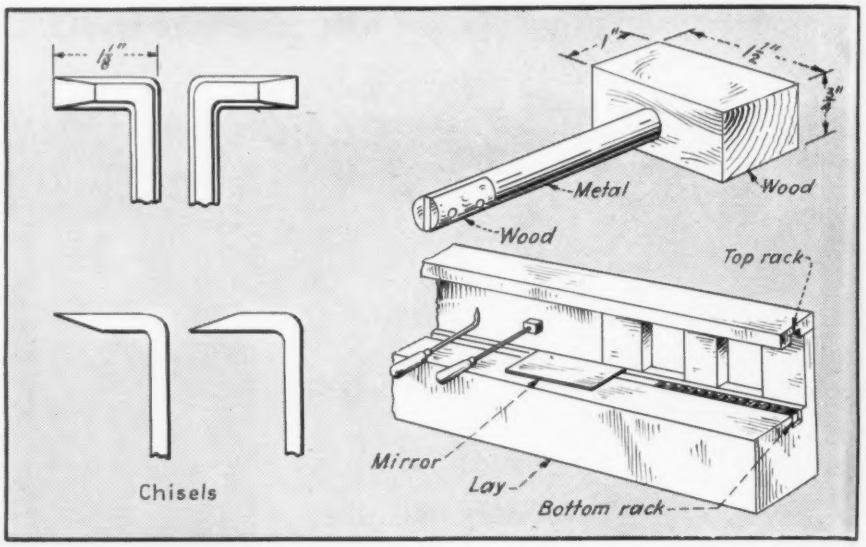
The simple holder shown in the sketch can be made in a size to suit any particular need, but the outside dimensions of 2 x 4½ in. provide a sufficient base for the ordinary lathe indicator. Screws with 10–32 threads are recommended because of their better holding and wearing qualities as compared with smaller screws.

The ends of the cross piece should be bent downward slightly to give the tool a three point bearing when used on a surface plate, being careful to have the upright part plumb. The gage may be applied in an approximate position and then accurately set by the use of the knurled screw in toe of the holder.—W. A. S. (*N.H.*)



Universal test gage holder.

Replacing Broken Rack Teeth on a Tape Loom



Tools for speedy repair of top racks on tape loom.

● Most webbing is now purchased for the armed forces, and usual specifications are for certain lengths without cuts. The usual method is to take the top rack out of the loom to patch it. The following quick method of replacing broken teeth in the top rack on double shuttle narrow fabric looms was devised to prevent short lengths and loss of production. Four chisels are bent as shown in accompanying diagram so that any kind of cut can be made. Then by placing a mirror on the lay so as to see the broken teeth the damaged section can be easily chopped out and a new one fitted in. Using a mirror seems awkward at first, but it will be found after a few trials, that top racks can be fixed as easily as bottom racks.

The chisels were bent by heating with an acetylene torch. First, the bevel was ground down to give the cutting edge a longer bevel, as this makes it easier to split the broken teeth free on the sides. Second, the cutting end was placed in a vise heated to the bending point and water dripped onto the bend to temper the tool. To apply the water, a handful of waste can be wet and squeezed. Note that each chisel is bent off slightly to the left to give the right hand room.

A hammer which would have weight without bulk was made to assist on chiseling in close places. To make the hammer 1 x 1 in. stock was cut down to ¾ in., one way, and a piece of ⅜ in. cold rolled steel with a wooden grip was set into this block to serve as a handle—F.G.(*R.I.*)

Auxiliary Cotton Cleaning Arrangement

● Mills that have opening set-ups direct from the bale-breaker to condenser and hopper-feed can be altered by a simple arrangement to provide additional fluffing and cleaning by putting a blower-fan equipped with blades for handling of cotton fiber in the line of opening equipment. The cotton drops from the bale-breaker into a hopper connected right to this fan. This auxiliary fan takes the cotton as it comes to it and whirls it about, thus opening the cotton more and exposing it to room-conditioned air. It then sends it on its way to

(Continued on page 138)

G.I. and K.D.T.

Surprising how many of the hundreds of items of G.I. equipment bear identification by Kaumagraph. Not confined to clothing or fabrics, KDT's and Prestomarks are used in the Army, Marine Corps, Navy, Coast Guard and Maritime Commission. Kaumagraph research, plus product adaptability, have provided the practical means of meeting rigid needs for marking—marking for identification, decoration, vital instructions or other information on the finest count fabrics, the coarsest canvas, rubber, and synthetics.

Perhaps you have a war production order that needs marking according to hard-to-meet Government specifications. Doubtless a Kaumagraph war-tested product or method will be the only solution. Many of these amazing new Kaumagraph marking developments will help you sell your products in the approaching highly competitive post-war markets.

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KINKS & SHORT-CUTS

(Continued from page 136)

the condenser or through whatever cleaning system there may be, to the hopper-feed. If the fan is run at too high a speed, it will snarl the cotton. The speed depends upon the amount of cotton the fan has to take care of. This set-up is useful wherever an exhaust or a vertical opener is not a part of the opening room equipment being utilized.—N. B. R. (Mass.)

Removing Railroad Tracks and Crow's Feet from Ply Yarn Fabrics

● Railroad tracks are sharp longitudinal break marks usually going diagonally across the length of the cloth. They sometimes seem to follow the selvage for a few feet and then branch off into the fabric. Crow's feet are small sharply defined break marks. Methods used in the handling of ply-yarn materials (alpacas, romaines, etc.) have improved considerably since this type of cloth first appeared in the broad goods market. However, dyehouses occasionally have a lot come through with crack marks or "railroad tracks," going the length of the piece. Two different ways of making the goods saleable are as follows:

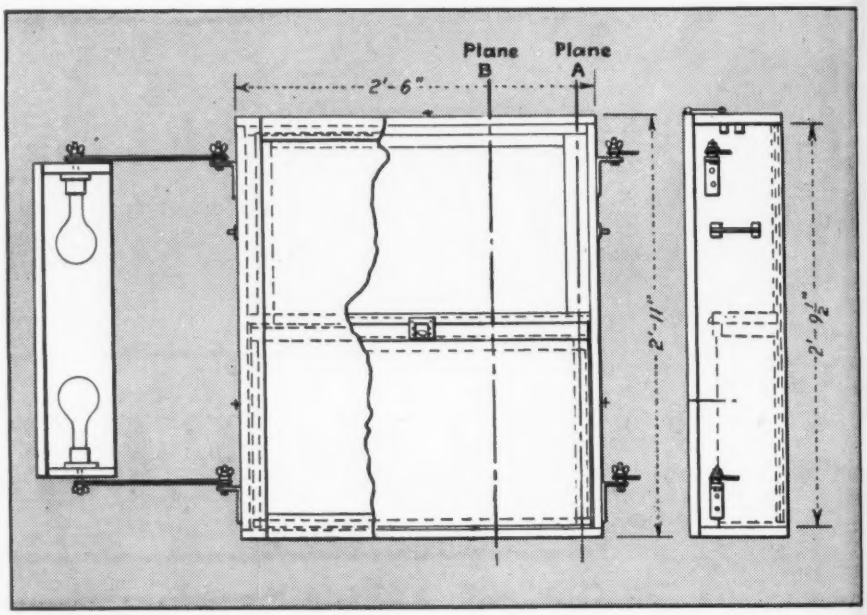
The first method is used for slight crow's feet or for railroad tracks that are not too sharp. The fabric is first framed as wide as is possible, usually 41½ to 42 in. for a so-called 39-in. cloth. Next the material is put through a decatizing machine. Finally the fabric is boiled off again and soured with acetic acid (2% on the weight of the cloth) at a temperature of 100° F. These treatments will remove all but the worst type of break. No redyeing operation will be necessary for blacks, although mode shades will require a slight touching up to restore the original shade.

The second method is used only for very sharp railroad tracks or crow's feet. Here again the cloth is framed as wide as possible, embossed using a coarse roller such as a No. 4, and then boiled off again and transferred to a dye tub. The cloth is then stripped with hydrosulphite, which destroys the dyes on viscose rayon fabrics, but in most cases only changes the shade of the acetate fabrics. Finally the material is rinsed and redyed to shade.—P.L. (N.J.)

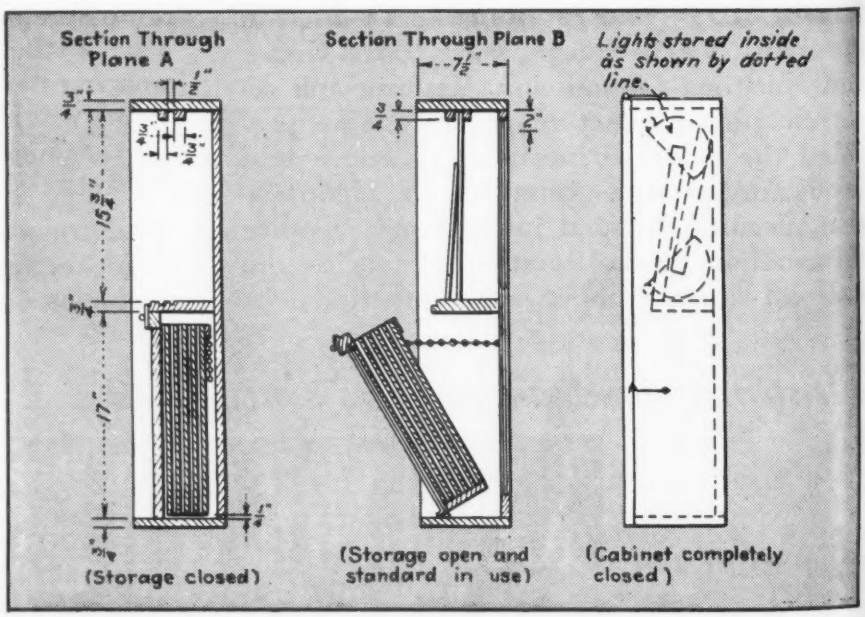
Grading and Storage Cabinet For Cotton Yarn Standards

● Many mills that are using the A.S.T.M. Cotton Yarn Appearance Standards will be interested building a cabinet that can be used for storage or examination of the standard panels. The Cotton Textile Institute has recently issued detailed drawings of such a cabinet, as shown in the accompanying sketches. Original drawings were furnished through the courtesy of the Food Distribution Administration, U. S. Department of Agriculture.

The cabinet is designed to hold the standard 15½ x 27½ in. wallboard panels on which yarn-standard photographs are mounted. The upper section is designed to hold a panel under examination, and a special adjustable vertical light fixture gives uniform lighting. The lower section consists of a swinging drawer with slotted guides to hold yarn appearance standards when not in use. The cabinet is of wood or plywood construction throughout and the light fixture can be made from scrap materials. The cabinet should be painted a light gray for holding cotton yarn standards.



Front view of cabinet with right-hand reflector and part of cover removed.


Section Through Plane A
Section Through Plane B
Lights stored inside as shown by dotted line.
(Storage closed)
(Storage open and standard in use)
(Cabinet completely closed)

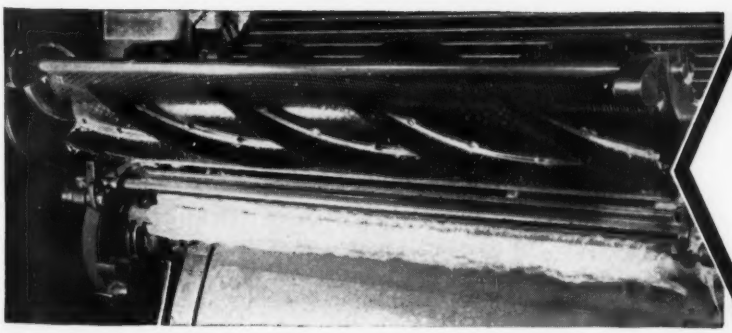
Side views of cabinet for use in grading yarn samples and storage of standards.

"FULLERGRIPT" is the Fuller Brush Company's patented method of gripping brush materials in a rust-resisting metal backing. The machine-controlled placing of materials in the metal backing results in a uniformly solid brush face, which can be fastened onto metal cores, or arbors. The density of the brush and the durability of the holding method means long life, better performance and serviceability.

All types of Brushes, Machine or Hand, for Textile and Finishing Mills.

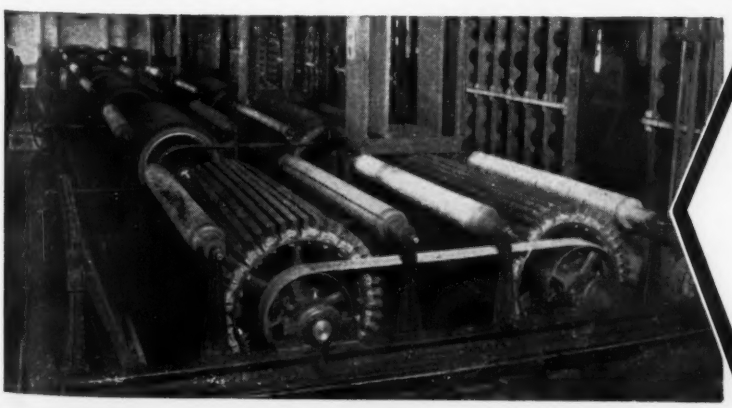
WORSTED-CARD BRUSHES

FULLERGRIPT Worsted Card Brushes, because of the densely packed brush materials, push the wool—*all* of the wool—down into the pins of the Morel clothing, leaving the burrs on top of the pins, free of fiber, ready for easy removal. (See cut.) Fullergript cylindrical brushes are proving helpful in three ways on worsted cards: As *feed roll brushes* to start the wool properly in the teeth of the first lickering; as *Morel brushes* to disentangle the burrs from the wool; as *transfer brushes* to carry the wool to the Morel roll and disentangle the burrs at the same time.



COTTON-FLAT CARD-BRUSHES

RIGID, metal-backed brush strips, pre-formed to the correct degree of spiral, can be easily attached to your present wood cores. The density of the brush with no gaps, prevents the accumulation of lint or lumps on your cards, and the stripper is cleaned more thoroughly. This means better carding.

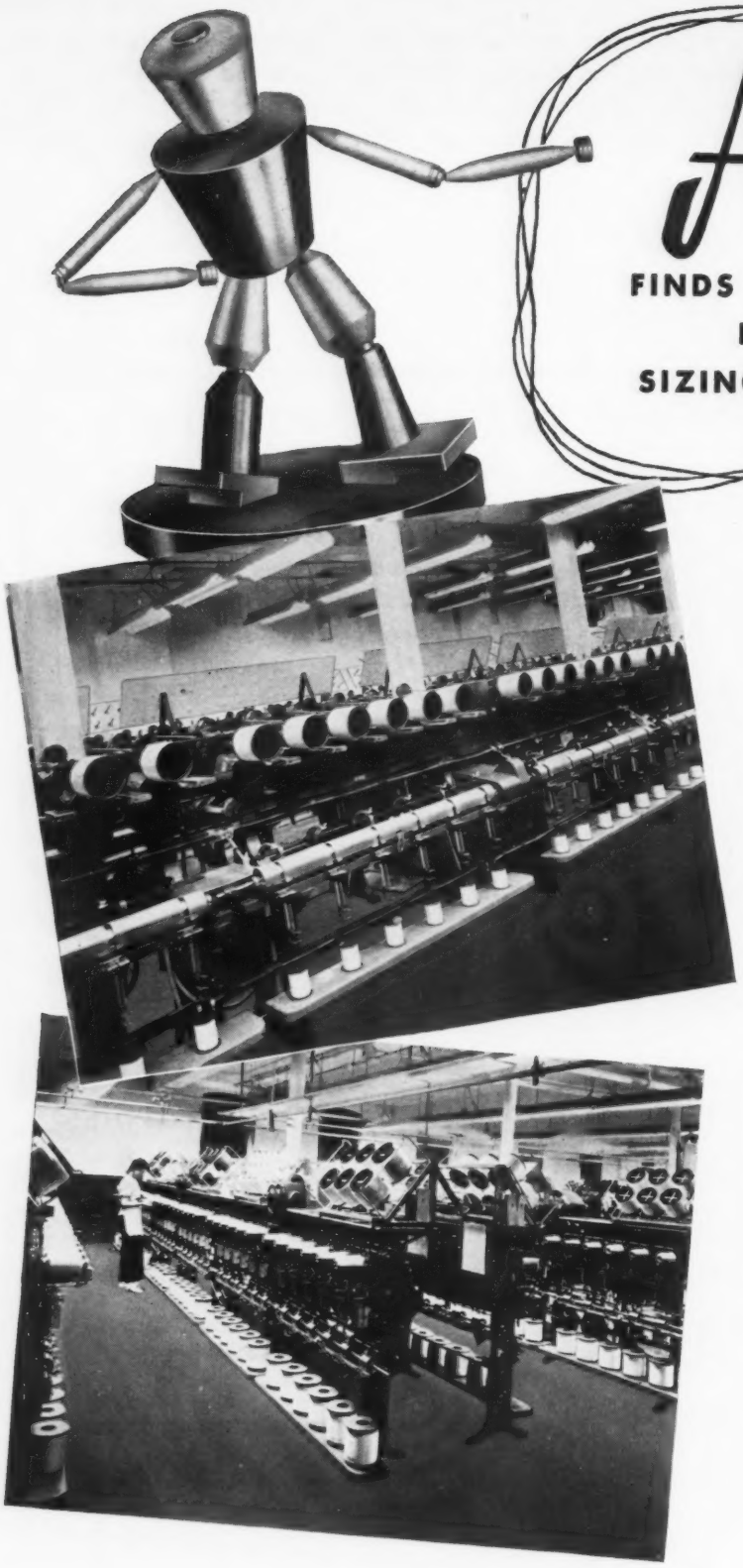


THREAD DRESSERS

DISCARD wood lags with their variation in weight, warping, splitting, and falling tufts. Use Fullergript for better ventilation and increased production. Their are no gaps or tufts in Fullergript to allow threads to ride on the core. These brush strips are set in pairs equally spaced around the periphery of the spiders, and are easy to install. Their production life is longer because of the dense, massed bristle filling.

The FULLER BRUSH Company

3594 MAIN ST., INDUSTRIAL DIVISION 8C, HARTFORD, CONN.



Atlantic

FINDS THE UNIVERSAL SYSTEM IS THE ANSWER TO SIZING AND CONING NYLON

At the Atlantic Rayon Corporation's modern plant in Lowell, Mass., nylon yarns are being sized and wound with gratifying success on Universal Winding Machines.

SIZING. The Universal Nylon Sizing Machine (No. 250) is of rugged construction, purposely made of simple design, employing a minimum number of moving parts. Vibration is virtually eliminated. Four winds across Traverse limits yarn oscillation.

A special heart-shaped Cam controls all Traverse Guides, alternately lengthening and shortening the traverse to produce a large-diameter tube with tapered ends. This scatter-wind means evenly distributed yarn on the Sizing Tube, thereby contributing to rapid and uniform conditioning.

There is little change in yarn take-up speed from beginning to end of winding — hence almost no change in tension which is applied *before* sizing.

The percentage of size pick-up is always easily and definitely controlled.

CONING. The Sizing Tube is an ideal direct supply for the Coning Machine. No re-draw operation is necessary. The No. 50 Universal Winding Machine with extremely simple Roller Bail Pineapple Coning Attachment for nylon is also designed to keep tension at a minimum. Yarn travels almost in a straight line from the Sizing Tube up past the stainless steel Emulsion Roll through an Auxiliary Tension Guide. Yarn contact points are few.

Pineapple cones are ideal for knitting or warping. Ten distinct shapes may be obtained easily by varying the tapers at the nose and base of the cone.

Universal Winding Company

LEESONA

REG. U. S. PAT. OFF. AND PRINCIPAL FOREIGN COUNTRIES

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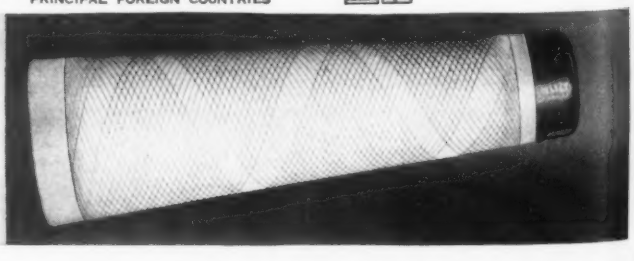
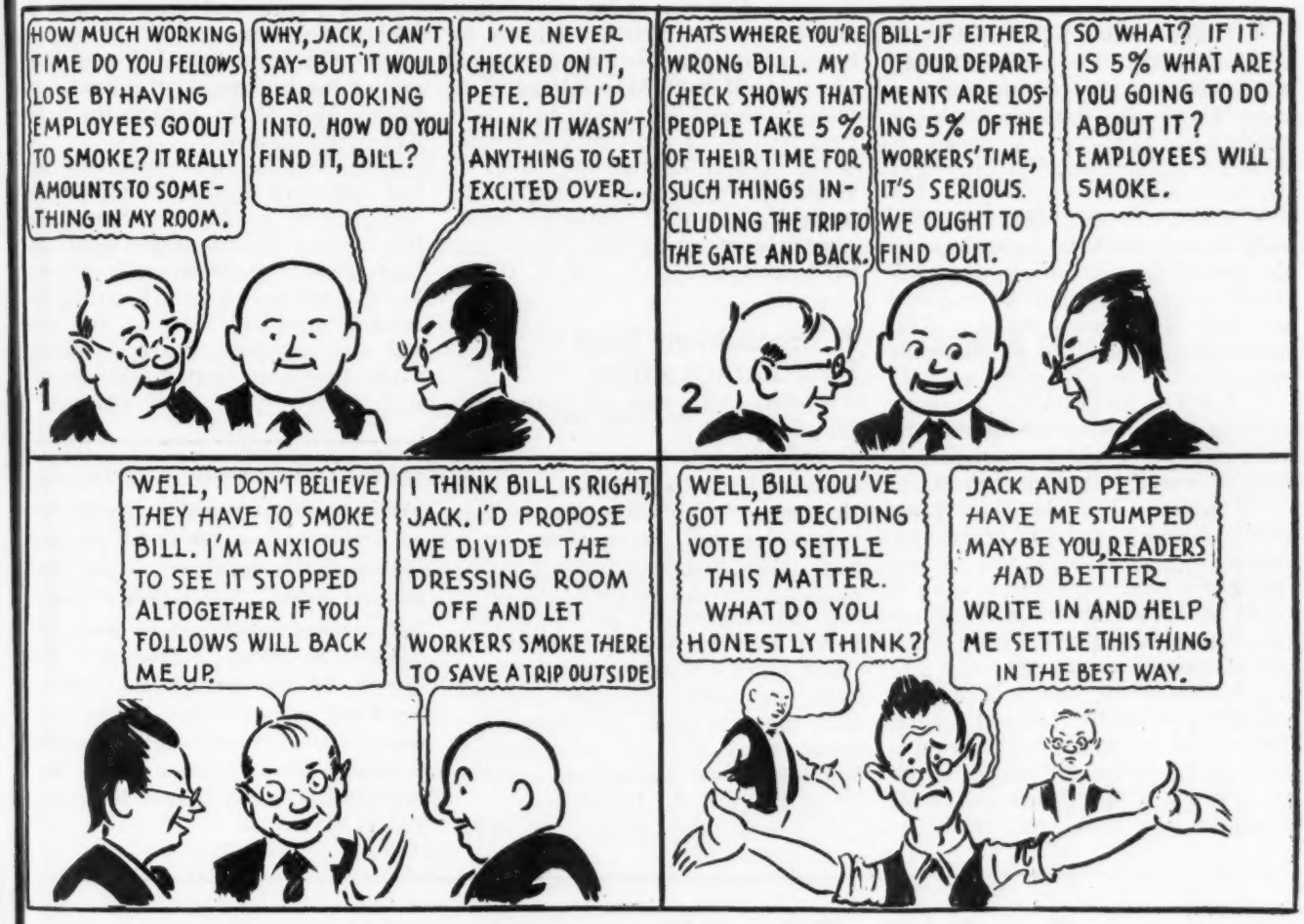
MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS PRECISE-WOUND ON THE FLEXIBLE 50



PETE & BILL

THE WORKER WHO WANTS TO SMOKE


HOW MUCH WORKING TIME DO YOU FELLOWS LOSE BY HAVING EMPLOYEES GO OUT TO SMOKE? IT REALLY AMOUNTS TO SOMETHING IN MY ROOM.
WHY, JACK, I CAN'T SAY- BUT IT WOULD BEAR LOOKING INTO. HOW DO YOU FIND IT, BILL?
I'VE NEVER CHECKED ON IT, PETE. BUT I'D THINK IT WASN'T ANYTHING TO GET EXCITED OVER.
1
THAT'S WHERE YOU'RE WRONG BILL. MY CHECK SHOWS THAT PEOPLE TAKE 5% OF THEIR TIME FOR SUCH THINGS INCLUDING THE TRIP TO THE GATE AND BACK.
BILL-IF EITHER OF OUR DEPARTMENTS ARE LOSING 5% OF THE WORKERS' TIME, IT'S SERIOUS. WE OUGHT TO FIND OUT.
SO WHAT? IF IT IS 5% WHAT ARE YOU GOING TO DO ABOUT IT? EMPLOYEES WILL SMOKE.
2
WELL, I DON'T BELIEVE THEY HAVE TO SMOKE BILL. I'M ANXIOUS TO SEE IT STOPPED ALTOGETHER IF YOU FOLLOWS WILL BACK ME UP.
I THINK BILL IS RIGHT, JACK. I'D PROPOSE WE DIVIDE THE DRESSING ROOM OFF AND LET WORKERS SMOKE THERE TO SAVE A TRIP OUTSIDE
WELL, BILL YOU'VE GOT THE DECIDING VOTE TO SETTLE THIS MATTER. WHAT DO YOU HONESTLY THINK?
JACK AND PETE HAVE ME STUMPED MAYBE YOU, READERS HAD BETTER WRITE IN AND HELP ME SETTLE THIS THING IN THE BEST WAY.

Should any provision be made for employees to smoke in the mill, or should the practice be stopped entirely? (Your published letters will be paid for—see panel on next page.)

Letters from Readers

A Vacation for Everyone

"Vacations, Overhauling and Production" Pete & Bill, Sept., 1943

Dear Pete & Bill:

One of the needs of the textile industry, is a program affording all workers an annual vacation. Most workers cannot save enough money to take a one or two weeks' lay-off without pay and for industry to give everyone time off with pay would mean a reduction of wages or increase in the price of products.

A solution to this problem would be a withholding levy of 4%; this money to be held by the employer for 50 weeks and then used to pay the employee his usual salary for the two weeks in which he does not work.

Practically all industrial workers have become used to having part of their wages withheld for social security benefits, income tax, group insurance policies and war bonds. This pay-as-you-go method is almost painless. If a worker makes $30 a week and $5 is withheld, he adjusts his budget to conform to a wage of $25 a week and forgets the amount withheld. Of course this withholding business can be carried to extremes, as was the dollar-down-and-dollar-a-week installment buying of prewar days.

Take for example a doffer making $30 a week: 4% of this would be $1.20, leaving an actual wage of $28.80. At the end of 50 weeks he would have $60 due (if he had no lost time) payable $30 a week for current expenses, and he could spend the time anywhere and in whatever manner his inclinations and finances would permit.

Some of the advantages of this system would be:

1. BETTER WORK—It would improve the health and well-being of the employee and make him feel

more like doing a really good job.

2. BETTER PERSONNEL RELATIONS—Anyone who keeps his nose to the grindstone day after day, and year after year, is likely to become cross, irritable and prone to "fly off the handle" and quit at the least provocation. A couple of weeks off will give a person a chance to see new places, make new acquaintances and spend unhurried hours at rest or play.

3. LESS ABSENTEEISM — All the above would be incentive to better attendance and accumulation of more money for vacation would be another, as each day lost would reduce the amount available by 4% of that day's wage.

4. REDUCE UNEMPLOYMENT —As workers would be needed to run the jobs of the vacationists, one additional employee would be required for each 25 regular workers. This would give thousands of people steady employment.

5. LABOR RESERVE—A vast reserve of skilled labor would thus be built up which would be invaluable in time of war or other emergency.

Of course, this plan has flaws. One is the additional bookkeeping involved, but, as it could not be put into effect before the war is won, it could be substituted for the War Bond take-outs in most plants. As only one out of each 25 employees could take his vacation at one time, half of them would be off in the fall and winter. This could be adjusted by giving a week off in winter and another week off in summer, or let each one be off a month later each year, or, better still, give each person his preference of the season wanted off when possible.

Another objection that might be raised is that some employees will use this vacation time and money to hunt another job. Of course some of them would do that, but the United States is still a free country and a dissatisfied hand is worse than no hand at all.

Much labor legislation will probably be enacted as soon as the war is won, and now is the time for industry to begin making plans for a reorganization of employer-employee relations. Any reforms should be made with due consideration of the rights and well-being of both capital and labor. A vacation for everyone is a small thing in itself, but if it could be made practicable it would be a step in the right direction. W. C. (Ga.)

A Breakdown from Poor Maintenance

"Vacations, Overhauling and Production" Pete & Bill, Sept., 1943

Dear Pete & Bill:

An incident happened at our mill that makes me believe that Bill is right. Our mill always closes for a week in the middle of summer, giving the help a week's vacation and allowing the maintenance crew a chance to put the equipment into shape. As usual, we closed last summer for vacation. The maintenance crew went into the spinning room and ripped the frames apart. The rolls were scoured, spindles flushed and refilled, and the frame, in general, cleaned.

We have many frames, and, with green help, overhauling of all the frames were way behind schedule. They had to be thrown together in order to have the frames ready for Monday morning.

After the usual time required to get the frames in operation, production soon came up to normal. Everything went fine until one day this fall.

Then it happened! Suddenly I heard a grating and grinding sound. The frame stopped, but the motor raced. On inspection I found that one of the bearings in the head had frozen. Most of the gears in the head had been stripped.

If the maintenance department had had sufficient time to overhaul the frames, they would have found the bad bearing. This illustrates what can happen when maintenance is allowed to slip until once a year. If our maintenance men had been on the job, and also our oiler, the bad bearing would have been located and repaired immediately. E. R. (Mass.)

LETTERS TO PETE & BILL are paid for when published, without regard to length. We use letters (not over 200 words) discussing material in this department or any other pertinent matter. Contributions of greater than specified length may be given consideration as articles. Suggestions for the Pete & Bill dialogue are also welcome and if used will be paid for. If these pages interest you—contribute something to them to interest others. Address PETE & BILL, Textile World, 330 West 42nd Street, New York 18, N. Y.

Synthetic Fiber Charts Ring the Bell

A RAYON YARN PRODUCER SAYS: "You are to be congratulated upon the interesting and informative Nineteenth Annual Synthetic Fiber Section appearing in September, TEXTILE WORLD. It is the subject of discussion throughout the trade and everyone highly praises this worthwhile contribution. If you plan to make reprints of this section, please advise me as I would like to obtain about 10 such reprints."

A TEXTILE MANUFACTURER SAYS: "Your September issue contains chart on the Properties of Synthetic Fibers which seemed to me to be very complete. I should like very much to have a set of these charts for my notebook and I hesitate to remove them from our copy of TEXTILE WORLD. Will you let me know whether separate copies can be had."

THE DEAN OF A TEXTILE SCHOOL SAYS: "We have noted with a great deal of interest the tabulation of properties of synthetic fibers on pages 108-120 of TEXTILE WORLD for September, 1943. If possible, we should like very much to obtain reprints of this article for use in classwork. If these are available, will you kindly give me a quotation on 50 copies of the article?"

A CHEMICAL MANUFACTURER SAYS: "I have read your article on synthetic fibers in the September issue of TEXTILE WORLD with great interest. If at all possible I would like to obtain two reprints of this information."

A GOVERNMENT OFFICIAL SAYS: "There appeared in the September issue of TEXTILE WORLD, an annual synthetic fiber section. The section included a feature article "Synthetic Fibers for the Postwar World" and a series of charts on the properties of synthetic fibers. Both the article and the chart series are pertinent to a consideration of the role of synthetics among other textiles in the post-war program. Our Occupational Outlook Division will find them useful in developing employment estimates. It will be greatly appreciated if you can send us a reprint of the article and chart series for our files."

* * *

These excerpts from a few of the many letters received attest to the fact that the charts on Properties of Synthetic Fibers rang the bell with our readers. Due to the demand for extra copies of the charts, we have had reprints made which are available at 15¢ each.

Employee-Morale Boosters

Adopts Retirement Fund Plan

Carolina Mills, Newton and Maiden, N. C., have instituted a retirement fund for their employees. Persons who remain in the employ of the corporation five years are eligible to participate. Retirement is at the age of 65. Payments into the retirement fund are made by the employee and the company, with the company making the larger contribution. Workers who have been on the payroll six months or longer and are inducted into the armed services will be given credit for the time served.

Women Workers Equal or Excel Men

Women workers in plants studied by the National Industrial Conference Board in the course of an inquiry completed last month are proving to be as good or better producers than men in a substantial majority of cases. Of 146 plants reporting to the Board, some 87, or nearly 60%, stated without qualification that the production record of their women employees was as good or better than those of men engaged on the same or similar work. In 36 plants, or 25% of the number reporting, women on men's jobs are producing less than men. In some instances executives explained that the women were producing less, probably because they were just starting at the work, but their output was expected to equal men's after they had acquired more experience and skill.

Hearty Breakfast for War Workers

Toast and coffee are not enough for the healthy, active war worker, according to advice in the *Textorian*. Homemakers who send their families off to jobs with a substantial breakfast find that frayed nerves and illness are less likely to appear. With so many members of a family working these days appetizing, highly nutritive meals are important.

Hearty morning meals at home that "stick to the ribs" are particularly important where food services and time are limited at the worker's plant.

Chest X-Rays for Workers

In an effort to improve the health of its employes Louisville (Ky.) Textiles, Inc., is the first and so far only industrial plant in the Louisville area to file application with the State Bureau of Industrial Hygiene for mass chest X-rays of all of its 700 workers, according to Maj. W. E. Daylo, director of the state bureau.

The new company requirement of a chest X-ray as part of its pre-employment physical examination will institute another progressive innovation for this area. The service will be rendered free of charge, and the work will be done by the new photofluoroscopic method.

This should prove beneficial to the company in selecting its future workers, and should aid the health of workers now employed by disclosing tubercular and other diseases requiring curative treatment and by assuring other workers of their not having to work with those who might communicate such diseases.

Booklet to Help War Workers

A booklet entitled "Spare Time- A War Asset for War Workers" has been published by the Division of

"HE WANTS TO BE SURE TO GET UP ON TIME FOR HIS WAR PRODUCTION JOB!" —This Walt Disney cartoon is reproduced from the first issue of *Mickey Mouse on the Home Front*, a tabloid size paper on newsstock printed in four colors and published by the Home Front Publishing Co., New York. It is designed to be distributed on contract for inclosure with the war plant's own house organ. The cartoons and illustrated stories, featuring such familiar characters as Mickey Mouse, Donald Duck, Jimmy Cricket, the Big Bad Wolf, etc., are designed to aid in morale uplift for those engaged in war plant work and to teach with humor and without dictatorialness.

Recreation, office of Community War Services, Federal Security Agency.

Stating that the average age of employees' cars is 7 years according to a survey of 94 war plants in 10 States, the National Association of Manufacturers has issued its Booklet No. 3 on "War Plant Employee Transportation" covering automobile maintenance under wartime restrictions.

An outline of safety training work has been published by the Division of Labor Standards, U. S. Dept. of Labor under the dramatic title "What Would You Pay for 8,000 Years Experience?"

"Ideas That Work & Win" is a booklet published by the Industrial Incentive Division of the Navy Department, Washington, which deals with the human factors affecting production.

Jokers Are Saboteurs In War Plants

Ill-advised "prankishness" has resulted in the loss of thousands of hours of production. At Decatur, Ala., a steel plant employee caused considerable delay in highly important work by tampering with the oxygen tanks. His only reason was "just to have some fun." Several workmen in a shipyard at Richmond, Calif., were severely burned by mustard oil placed on them by a fellow worker as a practical joke. In the same shipyard a crew had been "having fun" by putting hot welding rods and lighted cigarettes in each other's pockets. Investigation of a fire in a Detroit plant revealed that employees frequently amused themselves by placing pieces of smoldering string on a workman's shoulder. One employee dropped matches in a cardboard box soaked with oil. In many plants intelligent management has solved this problem through special training of plant guards.

Lindale's War Contribution Presented

"Lindale Goes to War" is a handsomely illustrated book presented by the Pepperell Mfg. Co. to its employees at Lindale, Ga., giving photographic evidence of the part they are playing in the war effort. The pictures include not only individual snapshots of the Lindale personnel now in the armed services but groups of workers active on the home front and photos of current events such as the "E" award presentation, parades, home-gardening, etc. A large spread presents the "Pepperell Roll of Honor" set up in Lindale with its list of over 643 men and women who have entered the armed services. The book starts with messages from Russell H. Leonard, president of the company and R. D. Harvey manager of the Lindale plant.

PERHAPS THE ONLY WOOLEN TEXTILE WORKER IN THIS COUNTRY WHO HAS EVER CHRISTENED A WARSHIP—Mrs. Marie Willis, right, of North Star Woolen Mill Co., Minneapolis, shown about to christen a Navy destroyer escort vessel at Houston, Texas. The U. S. S. Willis was named after her son, Ensign Walter Michael Willis, who was posthumously awarded the Purple Heart for heroism at Pearl Harbor on Dec. 7, 1941. Immediately following the launching, Mrs. Willis returned to her job in Minneapolis, where she is forelady of North Star's weave room. She has been a North Star employee for more than sixteen years.

Employee Suggestions in Record Volume

The employee suggestion plan of General Motors Corp. has reached high marks of effectiveness and cooperation. It is currently reported that suggestions are being received at the rate of over 10,000 per month and that awards are being granted at the rate of more than $1,000,000 a year in war bonds and stamps although the maximum single award is a $1,000 war bond. General Motors offers to pass on the details of its wartime employee suggestion plan to any concern interested.

Girl Safety Engineers

J. C. Holler, Anderson, S. C., is the instructor of a safety engineering class at the Girl's High School which began on Oct. 11, under the sponsorship of the Clemson School of Engineering in cooperation with the city schools. The class will continue for 16 weeks with a minimum of 96 hours of instruction. Certificates will be given to those key workers who satisfactorily complete the course.

GE Employees' Garden Called Best of Year

Best community victory garden in the country this year was the 22-acre plot farmed by 500 employees of the General Electric Co's Appliance and Merchandise Department at Bridgeport, Conn., according to the National Victory Garden Institute, New York.

Offers Industrial Management Course

Parker High School, Greenville, S. C., has inaugurated a night course in industrial management under the direction of Prof Brant Bonner of Furman University Economics Department. Fifty-three are now enrolled in the course which will be given for 10 two-hour periods every Tuesday and Thursday nights at 7 o'clock.

The students will take up financing and organization of textile plants; selling; wage payments, and elements of cost as they affect the manufacture of textile products. The course is designed for persons already employed who wish to get a better background for promotion.

NEWS OF THE MONTH

Favorable Postwar Factors Listed by E. D. Fowle

In a talk on "Postwar Prospects for the Textile Industry," before the 15th Boston Conference on Distribution, Oct. 19, Edwin D. Fowle, publisher and editor of TEXTILE WORLD, included the following in a list of favorable factors:

1. Highest savings by individuals in history.
2. Inability of consumers today to buy the specific textiles wanted.
3. Lack of color fastness and other quality properties in textiles now purchased.
4. Need for new clothing by the demobilized armed services, due to sacrifice of old civilian clothing to charities, to moths, and to conversion into women's mannish-style garments; due also to lack of fit resulting from changes in diet and exercise and, in the case of the younger men, from normal growth; and also to style changes and familiarity with superior Government-specified textiles.
5. Demand for more comfortable clothing and for more outdoor clothing and other textile equipment, stimulated by military life.
6. Government requirements for a larger standing Army and Navy.
7. Probable prosperity of other industries using textiles, such as automobile, rubber, shoe, electrical, etc.
8. Huge demands for lend-lease and foreign relief.
9. Ability of the textile industry to resume civilian production on short notice.

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Spencer Love Succeeds Frank Walton in WLB

Appointment of James Spencer Love, of Greensboro, N. C., to succeed Frank L. Walton as Director of the Textile, Clothing and Leather Division WPB has been announced by Operations Vice-Chairman H. G. Batcheller.

Mr. Love, who is president of Burlington Mills Corp., has pioneered in the development of widespread use of rayon yarns and is a past president of the former National Rayon Weavers Association. He is a member of the board of the Textile Research Institute and a former director of the North Carolina Cotton Manufacturers Association.

The cotton industry was shocked by Mr. Walton's resignation, and many ascribed it to internal politics which they interpret as hampering the operation of the textile division.

FREE ENTERPRISE

THE READER'S particular attention is called to two important editorials in this issue on the subject of free enterprise, by James H. McGraw, Jr., president of McGraw-Hill Publishing Co., Inc. These editorials, which appear following pages 84 and 128 respectively, are the first two of a series which will be continued, one an issue. The subject is so vital to all of us, and the need for clear thinking on it is so great today, that we hope our readers will not miss a single unit of the series.—Editor.

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Changes in OPA Executives

Chester Bowles has succeeded Prentiss Brown as Director of OPA. Recent OPA appointments follow:

Edward E. Wilson, vice-president in charge of sales and merchandising, Munsingwear, Inc., has been appointed chief consultant on knit underwear for OPA.

Truman P. Handy, former general sales manager of Celanese Corp. of America, is now chief consultant on rayons for OPA.

Robert O. Huffman, of Huffman Full-Fashioned Mills, Morganton, N. C., has been named chief consultant on hosiery to OPA.

CANNED BLANKETS: Demonstrating the sturdy, water-tight blanket can built by American Can Co. on special order for the U. S. Maritime Commission, is George Eckman (left), designing engineer who perfected it, and Chief Officer Allan C. Smithies, of an American merchant ship.

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Cotton Research Advocated by Cramer

"We will have to develop better types of cotton, and more useful, or more attractive kinds of fabrics," explained Stuart W. Cramer, Jr., president, Cramerton (N. C.) Mills, Inc., before the 4th National Cotton Conference Forum held under auspices of the New York Cotton Exchange at the Biltmore Hotel, New York, Oct. 21. Continuing, Major Cramer pointed out that to hold our markets we will have to take full advantage of research and promotion programs. A great deal of this work can be done on an industry-wide basis, although it should be supplemented by intensive development and promotion by individual companies on separate items.

Under present war conditions, there are few mills that are having any difficulty in disposing of anything they are able to manufacture. After the war the situation will change materially, he stated, and we will be faced with the competition of foreign cotton, foreign goods, as well as of other fibers such as rayon, jute and paper from at home and abroad. If the Government deems it necessary to subsidize the export of cotton, exports of manufactured cotton products must also be subsidized, and reasonable protection against imports furnished.

Other speakers were John F. Fennelly, executive director, Committee for Economic Development; F. M. Folsom, Office of Procurement and Material, U. S. Navy.

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Discuss Mildew-Resistance and Yarn Numbering

Outstanding features of the fall meeting of Committee D-13 of the American Society for Testing Materials, held last month in New York,

RECENTLY DEVELOPED FABRICS BEING USED IN NEW UNIFORMS

Photo section, Philadelphia QM Depot

LEFT: Nine-ounce sateen, covered in Specification PQD-245D and described in Manual of Military Fabrics in Sept. 1943 issue of TEXTILE WORLD, is used for a new army field jacket. Lining is 5-oz. poplin, Specification PQD-1, as covered in the Manual of Military Fabrics in the Feb. 1943 issue of TEXTILE WORLD. RIGHT: Cotton seersucker, 4-oz., covered by Specification PQD-306, is used for slack suits now being worn by Army nurses on duty in hospital ships, trains and in the warmer climates overseas. This fabric is quite similar to the 4.2-oz. seersucker, PQD-210, described in the Nov. 1942 issue of TEXTILE WORLD.

were a symposium on tests for mildew-resistance and discussion of a proposed universal yarn-numbering system. At the symposium on mildew-resistance a series of papers was presented on the evaluation of mildew and rot-proofing treatments. Speakers were Dr. Henry D. Barker, Glenn A. Greathouse, and Miss Margaret Furry, of the U. S. Department of Agriculture; and Elmer C. Bertolet, Senior Technologist, Jeffersonville Quartermaster Depot. The proposed yarn-numbering system, known tentatively as Grex, is based on decimal units. This system of yarn numbering, if adopted, would take the place of some 15 different systems now employed in various branches of the textile industry. It was decided to publicize the proposed system and to submit it to the textile industry for comments and then to give it further consideration at the spring meeting of Committee D-13.

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Thread Institute Has 10th Anniversary

The tenth annual meeting of the Cotton Thread Institute was held in New York on Nov. 5. The general session was addressed by Joseph Pollack, chairman of the board of directors, and by Edward R. Schwarz, professor of Textile Technology at Massachusetts Institute of Technology, who spoke on "Threads in the Post War Period." The luncheon session featured a special program related to the tenth anniversary of the founding of the institute.

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Cotton Carding Research

Cotton carding, recognized as one of the principal bottlenecks in the manufacture of cotton fabrics for military purposes, will be subjected to a critical study at the Textile School of North Carolina State College, under the direction of the Textile Research Institute, Inc. This project will be financed by funds allocated by the Production Research and Development Branch of WPB. G. H. Dunlap, who recently concluded a preliminary study of the problem of increasing card production, under a grant by the Textile Foundation, will supervise this new and broader research. Special attention is to be given to the quality element of the cottons used, and to the physical changes of the fibers themselves under a wide range of carding conditions. The work will also involve analyses of the various types of waste removed, and the spinning and testing of many hundreds of cotton yarns. Dean M. E. Campbell will have general direction of the work for both the school and the Textile Research Institute.

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High-Impact Acetate Rayon For Parachutes

Data on high-impact acetate rayon for parachutes have been released recently by A. M. Tenney Associates, Inc. According to the announcement, development engineers of Tennessee-Eastman Corp. about a year and a half ago began the study of the behavior of a parachute during the shock of opening and of the forces involved during this moment. This study indicated that the real measure of performance for a parachute yarn or fabric is the work required to rupture it, rather than tensile strength alone. This conclusion led to the study of the impact resistance of various yarns. Tests made on a number of different types of yarn confirmed the fact that impact resistance is dependent on both strength and stretch. A special high-impact acetate rayon developed by Tennessee-Eastman had normal tensile strengths but greatly increased stretch, as compared with ordinary acetate rayon yarn. From this yarn, an experimental 4.5-oz. acetate rayon fabric was woven for the canopy of cargo chutes, and trials were made with experimental chutes made from that fabric. As a result of these tests, Army Air Forces Specification No. 16144 was issued July 13 for a high-impact acetate rayon fabric for cargo parachutes.

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Reeves Acquires Thurston Organization

Reeves Bros., Inc., New York, has acquired the entire W. Harris Thurston organization including the Thurston Cutting Corp. and full rights to Byrd cloth and Airwing fabrics. Present plans do not call for any major changes and business will be conducted by the Thurston personnel as formerly at its offices in 40 Worth St., New York.

For several years Byrd cloth fabric has been manufactured solely at Mills Mill, Woodruff, S. C., one of the Reeves Bros. mills. Already an im-

portant supplier of uniform fabrics to the Army, Navy and Marine Corps, Reeves Bros. will now supply fabrics for airplane, glider and dirigible coverings, Army foul weather clothing, Army field jackets, arctic clothing, sleeping bags, parachutes, life vests, life rafts and pontoons. For postwar Reeves will utilize the research and sales experts of the Thurston organization in further development of special finishes and fabrics for a diversity of fields.

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Changes in Textile and Clothing Branches in QM General's Office

Appointment of Col. Robert T. Stevens as Deputy Director for Purchases, Procurement Division, Office of the Quartermaster General, has been announced by the War Department. Major Gen. Clifford L. Corbin is Director of Procurement.

At the same time, it was stated that the Clothing and Textile Branch, of which Col. Stevens has been chief, has been reorganized into two separate branches, the Textile Branch and the Clothing Branch. Lt. Col. Christopher C. Baldwin will become chief of the Textile Branch, Lt. Col. Campbell D. Garrett will head the Clothing Branch. William H. Hoch has been named executive assistant to Col. Stevens.

AS PART OF THE UNIFORM recently adopted for its messenger girls, Western Union Telegraph Co. has issued these blouses of Koda shirting. The fabric, woven with Eastman acetate rayon, was selected for coast-to-coast duty because of excellent wearing qualities, soil resistance and ease of cleaning. Three blouses apiece were issued to 2500 employees.

Details of Rayon Tire Cord Expansion

WPB has ordered a 41,000,000 lb. expansion in existing high-tenacity rayon yarn production to meet rayon cord requirements for the manufacture of synthetic rubber tires in 1944 and 1945.

The expansion—identical with the one discussed at the Truman Committee hearings on Sept. 22—increases the total rayon yarn production program for military and heavy-duty civilian tires to 235,000,000 lb.

Roughly 275,000,000 lbs of cotton tire cord are scheduled for production for use in synthetic tires during 1944. Actual rayon yarn production for synthetic tires in 1944 is estimated at 144,000,000 lbs.

All facilities involved in the 41,000,000 lb. expansion must be in place and operating at capacity by July 1, 1944.

The four mills to which directives were sent are already producing high-tenacity yarns. These mills, together with the amount of additional capacity each is ordered to develop, are: E. I. duPont de Nemours & Co., Inc., 2,000,000 lb; American Enka Corp., 2,000,000 lb; American Viscose Corp., 28,000,000 lb; Industrial Rayon Corp., 9,000,000 lb.

Two companies—American Viscose and Industrial Rayon—also were ordered to establish facilities for weaving tire fabric from the yarns to be produced. In addition to being time-saving, this move is expected to conserve manpower, critical materials and transportation facilities. It was decided upon after it was revealed that the two mills involved have both the floor space and labor required to take on this additional job.

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Callaway Divides into Three Operating Divisions

Callaway Mills, La Grange, Ga., have divided their plants into three integrated operating divisions. Changes are to be completed progressively by Dec. 4. Each of the three operating divisions will handle its own industrial relations, employment, training, purchasing, cotton, job assignments, machine standards and control, maintenance, overhauling, accounting, payroll, etc. Selling, credit and collection of accounts will continue as before for the entire organization.

Division HDV is composed of Hillside Plant, Dye Plant, and Valway Plant under the control of the following officers: A. B. Edge, Jr., vice president and general manager of the division; A. U. Priester, Jr., assistant vice president; C. G. Higginbotham, assistant treasurer.

Photo by Jeffersonville QM Depot

NEW WATER BAG DEVELOPED FOR DESERT REGIONS—Capt. W. L. Hicks, Jeffersonville QM Depot, a former professor of textile chemistry at Clemson (S. C.) Textile School, developed a specially treated high-count duck suitable for use as water bags in desert and tropical regions. The fabric used in this water bag is treated with natural gums to simulate those found in flax. Appreciable permeation to the outside surface is permitted, providing evaporation which cools the water in the bag. Formerly, bags were rubberized and water contained in such bags reached temperatures under desert conditions that made the water almost undrinkable.

Division USEO is composed of Unity Plant, Unity Spinning Plant, Elm City Plant, and Oakleaf Plant under the control of the following officers: P. N. Collier, vice president and general manager of the Division; W. B. Hill, assistant vice president; J. D. Talbert, assistant treasurer; C. M. Geer, assistant secretary.

Division MMC is composed of Manchester Plant, Milstead Plant and Calumet Plant, under the control of the following officers: J. H. Daughdrill, vice president and general manager of the division; Lewis Price, assistant vice president; R. D. Brawner, assistant treasurer; J. C. Amos, assistant secretary.

The other officers of the company follow: Fuller E. Callaway, Jr., president; Ely R. Callaway, vice president and credit manager; R. D. Williams, Jr., vice president and sales manager;

THE "SUBSTITUTE GIRL" from "Fashions of the Times" staged by the *New York Times* on Oct. 20, 21 and 22, wears a raincoat of "Element Cloth," a substitute for rubberized fabric. It is water-repellent outside, plastic-coated on the inside, making it completely waterproofed. The lining is man-made rayon yarn backed with cotton. Minus the coat (center) she shows a two-piece dress made of Aralac. Completing the "Strip-tease" she is shown in a black foundation garment of DuPont's Flexchine.

H. G. Smith, vice president and secretary; Wm. H. Turner, Jr., assistant secretary; J. K. Boatwright, treasurer.

M. M. Trotter has resigned as vice-president and director of purchases of Callaway Mills, but remains on board of directors. Frank Lewis is purchasing agent of the HDV Division; J. J. Hinds is purchasing agent of the USEO Division; Eugene White is purchasing agent for the MMC Division.

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Marine QM Officers Guests of Textile Industry

High ranking officers of the Quartermaster Branch of the U. S. Marine Corps were guests at a reception and dinner held under the auspices of the Textile Square Club at Hotel Astor, New York, on Oct. 19. Among the guests of honor were Major Gen. Seth Williams, Quartermaster, USMC, Col. M. C. Gregory, C.O., Depot of Supplies, Philadelphia, Col. G. L. Gloeckner, in charge of procurement, Depot of Supplies.

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This and That

Civilian quota of organic dyes has been increased by 1/6 by a recent revision of WPB Conservation Order M-103.

Removal of allocation of restrictions on castor oil, lard oil, and tallow oil for civilian textile uses has been announced by the War Food Administration.

All restrictions on manufacture of elastic thread made with synthetic rubber have been removed by WPB. This paves the way for the use of synthetic rubber in such items as underwear, foundation garments, suspenders, and garters.

Specifications for industrial clothing have been prepared by the American Standards Association and are being circulated.

J. E. Sirrine Textile Foundation, of Clinton, S. C., has been granted an eleemosynary charter, authorizing it to conduct training in textile skills and develop executive and leadership ability. Directors include Walter S. Montgomery, president of Spartan Mills and Beaumont Mfg Co, Spartanburg; George M. Wright, of Great Falls, and W. H. Beattie, of Greenville, S. C.

TEXTILE CALENDAR

Textile Research Institute, annual meeting, Hotel Roosevelt, New York, Nov. 18, 1943.

American Assn. of Textile Technologists, regular meeting, Builders Club, New York, Dec. 1, 1943.

Exposition of Chemical Industries, Madison Square Garden, New York, Dec. 6 to 11, 1943.

Textile Markets Evolving Slowly

Cotton goods operations continue as in recent months with scant yardage available for unrated uses. Substitute constructions of gray goods have been in demand, but mills are selling only nearby deliveries to the general trade. The sagging production curve of the industry means a declining yardage for civilian uses. Efforts to gain higher ceilings, so far fruitless, are continuing, since a margin to cover the higher costs of overtime operation might increase yardage.

Wool goods sellers have launched the spring 1944 women's wear season for delivery January to March, mostly by allotment. Shetlands, crepes, suedes, flannels and coverts are prominent. All-wool fabrics dominate. Since manpower, rather than raw material, now limits civilian yardage the time is drawing near for relaxation of restrictions relative to use of wool. The wool situation is difficult, however, as many merchants have no confidence in the price structure and will not carry stocks of domestic wool.

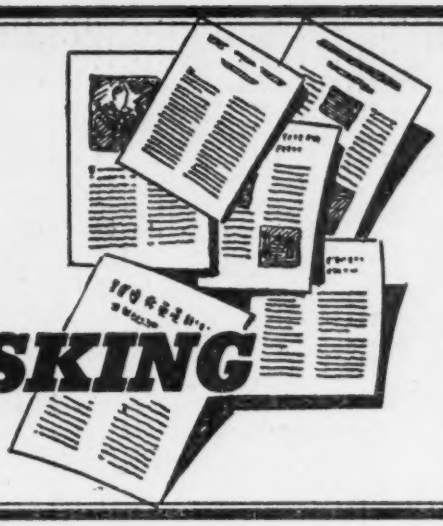
Rayon availability for non-military purposes is still steadily shrinking as war uses multiply. Here and there, however, small lots of specialty yarns are being made available and users can thus experiment on a small scale with materials which should be plentiful after the war. Staple rayon is also tight and steps are under way to cancel the allocation of staple to the woolen and worsted industry.

Hosiery manufacturers are now more optimistic on coming modification of troublesome OPA rulings than in the past. Higher ceilings have been given the ultra-fine gage full-fashioned numbers, but this move affects only about 1% of the total production. Half-hose is well sold, and makers are limited as much by yarn scarcity as by manpower.

Underwear mills, fighting civilian scarcity, have been given several items of relief. Their ceilings on certain heavy weight numbers have been raised 6%, though the wholesale and retail prices on the same numbers have been left as before. Also the makers of heavy garments have been given AA-4 priorities on yarn purchases. The manpower situation, also a limiting factor, is being investigated. Release of synthetic rubber yarns aids foundation garments.

Outerwear offerings are limited. Deliveries are much behind-hand and the retail supply for the current cold-weather season will probably evidence its scarcity before the season closes.

FREE FOR THE ASKING



READERS interested in literature reviewed on this page may secure copies by using time-saving coupon on other side of this sheet. Mark what you want on it and send it to Textile World, 330 West 42nd St., New York 18, N. Y., being sure to give your name and company connection.

1. A card production guide which serves as a guide for mills in determining the production which yields the best results with the particular stock they are using, appears in the July issue of *The Saco-Lowell Bulletin*, published by Saco-Lowell Shops. This card production guide lists grade and staple of cotton, kinds of goods, counts of yarn and card production in pounds per hour. Also appearing in the same issue are articles covering an improved rake distributor, Saco-Lowell needle-bearing spindle with loose-locked step, a continuous card stripper and a description of a textile mill in Uruguay.

2. Crotelaria, a fibrous plant, which grows rapidly and yields heavily and may be spun and woven the same as cotton, is described in the October issue of *The Howard Way*, published by Howard Bros. Mfg. Co. An article entitled "Why Won't Workers Work?" should prove interesting to all mill men as it relates the experiences of one southern mill man and describes how he solved the absenteeism problem.

3. Clearing seams in shearing with equipment containing the latest of control devices permits only 18 in. of cloth to pass unsheared for each seam passage. This is only one of the points brought out in an article appearing in the September issue of *The Clothroom Spotlight*, published by Hermas Machine Co.

4. "Reduction and Oxidation of Vat Color Prints," is the title of an article appearing in the October issue of *Dyelines and Bylines*, published by Calco Chemical Division, American Cyanamid Co. This article describes a number of experiments in which it was found that vat dyed fabrics in the reduced state should be protected in a covered truck or box and that stray beams of strong sunlight should not be permitted to strike such cloth during this part of the vat dyeing procedure.

5. Improved cop former assembly for the No. 90 winding machine is described and illustrated in No. 40 of the series, *Getting the Most from Winding*, published by Universal Winding Co. Adjustment of the stopping lever wheel on the No. 50 winding machine is covered and also adjustments necessary to prevent thread guide breakage.

6. Rayon warp sizing on the cotton system is discussed in the September issue of *Rayon Warp Sizing Specialist*, published by Charles B. Johnson Machine Works. This article, a continuation of those running in preceding issues of the *Specialist*, deals with the various types of hook reeds and the arrangement of Scottish hook reed in the control frame on a cotton system rayon warp sizing machine.

7. "Industry's Power Transmission Program Geared to War Production Demands," is the title of a book published by Cling Surface Co. This booklet shows the necessity for and benefits of a planned power transmission program, the necessity for and a description of a planned maintenance program, and contains many practical suggestions on the salvage and re-use of power transmission equipment.

8. "Maquinaria Textil," is the title of a Spanish catalog just issued by Whitin Machine Works describing the complete range of textile equipment manufactured by this concern. Cotton equipment and woolen equipment are described in detail and technical information concerning the equipment is contained, including shipping weights. The catalog is well illustrated and printed entirely in Spanish.

9. "A Wartime Visit to the Manufacturing Division of Marshall Field & Company, Inc.," is the title of a booklet recently issued to the shareholders of this concern. This booklet describes the peacetime activities of this concern and also the unusual textiles they are now producing for war goods. Samples of a number of military fabrics are included.

10. Draft control is discussed in Bulletin No. 800A offered by Preferred Utilities Manufacturing Corp. This bulletin describes how boiler stack losses may be reduced with draft control. Draft control to within .01-in. water gage may be obtained. Illustrations showing installations are contained and also a chart showing the relationship of CO_2 to excess air.

11. Overhead handling equipment is described in a booklet offered by American MonoRail Co. A number of actual installations in textile mills are shown such as the handling of slasher beams, cloth rolls, packaged yarn in the dyehouse, raw stock in the dyehouse and bales of waste cotton.

12. Dermatitis of workers' hands is discussed in a reprint being offered by Pioneer Rubber Co., in which it is stated that dermatitis of the skin now make up 65 to 70% of all occupational diseases. It is stated that the use of Neoprene gloves is very helpful in controlling dermatitis.

13. Balanced lighting is discussed in a folder issued by Fosteria Pressed Steel Corp., entitled, "It Pays to Send a Man to Do a Man's Job." The value of good lighting and typical installations of lighting are covered.

14. "Pre-Postwar Action to Meet Postwar Conditions," is the title of a 12-page folder offered by W. J. Barney Corp. in which is discussed the advisability of building construction improvement at this time to meet postwar conditions.

15. Care of steel drums is covered in an illustrated folder featured by National Adhesives, Division of National Starch Products, Inc. This folder points out the importance of keeping drums in circulation because of wartime difficulties in obtaining new barrels and points out a number of don'ts in handling them.

16. A new protected polyphase squirrel-cage motor is described in Bulletin 1160 offered by Fairbanks-Morse & Co. The bulletin describes this type of motor which is protected from falling objects and dripping liquids. Complete protection is provided in

(*Continued on next page*)

any position. Dimensions, frame sizes and motor characteristics are given.

17. "How to Specify Corrugated Boxes," is the title of booklet No. 7 in the Little Packaging Library offered by Hinde and Dauch Paper Co. New factors affecting specifications on corrugated boxes for product shipment under wartime conditions are thoroughly analyzed in this booklet. An 18-point check list is included which covers every phase of the packaging job and should assist in specifying corrugated boxes.

18. Promotion of plant safety without sacrifice of production speed or efficiency is the aim of a new series of safety signs prepared by Townmotor Corp. for display along factory lift truck routes. The four signs cover such items as caution; low head room; slow, narrow aisle ahead; slow, blind corner and stop, crossing. Lift truck routes are also indicated. The size of the sign is 14 x 22 in. thus permitting easy display without visual interference.

19. "Safeguarding the Woman Employee," is the title of a report recently issued by Policyholders Service Bureau of Metropolitan Life Insurance Co. With women taking over many operations in textile mills, successful methods used to educate the woman worker in safe working practices are of particular interest to textile executives today. This report offers a review of the steps taken by a number of companies to sell the idea of safety to their women employees.

20. "Fifty Years of Progress," is the title of a pamphlet just issued by Universal Winding Co. in which they describe 50 years of progress in winding. Photographs are contained therein showing winding installations in textile plants in all sections of the world. Various types of winding equipment are illustrated and also photographs are shown illustrating Universal building rifles for the armed forces.

21. Record forms for increased production are inclosed in a folder describing the Visirecord systems recorder, being offered by Visible Index Corp. Sample records forms are inclosed for recording learner's history and progress, for personal analysis and character analysis, history records of the employees and attendance records for the year.

22. Textile engineers will find a 24-page bulletin GEA-3856 recently issued by General Electric Co. and describing how most control systems can be built-up by combining standard control units and accessories into the required number of Cabinetrol sections, usful when considering proposed plans for rearranging power plant and power distribution systems.

23. Proportioning sulphuric acid to water is discussed in Bulletin 2985-A offered by Cochrane Corp. An ingenious system of proportioning sulphuric acid to water supplies is discussed and accuracy is obtained without the use of any moving parts in contact with the corrosive liquid—giving long life and insuring very low maintenance charges.

24. "Felt Facts," is the title of a 22-page booklet prepared by and offered by The Felt Association, Inc. This booklet is interesting in that it contains in non-technical language the various steps in the process of manufacturing felts. It is well illustrated and a partial list of military uses of felt is contained therein, listing many uses for aviation, chemical warfare, clothing, communications, marine, motorized forces and for many other branches in the armed services.

25. Textile engineers will find Engineering Data Book ID-105 offered by the Industrial Division of Continental Gin Co. of great assistance as it contains much useful engineering data on belt conveyor designs. Horsepower formulas for belt conveyors, weights of idler rolls and rubber belts, belt stress, trajectory of discharge and other useful engineering data are given in tabular form. Formulas are also given for the calculation and determination of many values not given in the tables.

26. Industrial pumps suitable for use about finishing plants, dyehouse and textile mills and also power plants are described in Catalog No. 43, offered by Joshua Handy Iron Works, Pomona Pump Division. Various types of industrial units are illustrated and described in the catalog along with performance tables and specifications. Condensate return units and automatic boiler feed units are also covered and an engineering data section is contained in the back of the catalog in which many formulas and tables are given concerning the calculation of pump capacities and performances.

27. "Your Guide to Rayon," is the title of a consumer-sales booklet published by American Viscose Corp. in which they have described in non-technical language the three types of rayon. A glossary of rayon fabrics according to weaves is contained and should prove very helpful. Also samples of the various types of weaves are illustrated. Information is contained covering the Crown Tested program.

28. Pneumatic motor agitators which may be operated directly from compressed air lines are described in a booklet entitled, Pneumix, and offered by Eclipse Air Brush Co., Inc. Various types of compressed air agitators are illustrated under actual working conditions as they are utilized by various industries.

29. Speeding plant wiring is described in a leaflet offered by Ideal Commutator Dresser Co. and should be of interest to all textile engineers, as it offers a simple and effective way of joining wires without solder.

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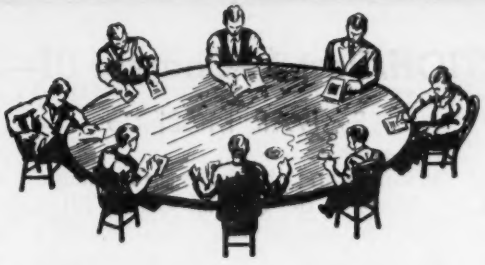
MILL MEN'S ROUND-TABLE



With meetings of operating executives curtailed because of the war, there is a definite need of a meeting place where mill men can discuss their problems among themselves. The Mill Men's Round Table is designed to supply this need. It is open to all readers for discussion of any and all subjects relating to mill management and operation. Bring your problems to the Round Table. Give other mill men the benefit of your experience, and get their ideas in return. To encourage frank and open expression of ideas and opinions on controversial subjects, names of contributors to the Round Table will not be published, but will be held confidential, if so requested. However, source of contributions must be identified as evidence of good faith and to permit payment for items published. Address contributions to: Editor Mill Men's Round Table, TEXTILE WORLD, *330 West 42nd St., New York. Opinions expressed in this department are those of the writers and do not necessarily reflect the opinions of* TEXTILE WORLD.

Method of Improving Fabric Break

Can a better break be obtained by adjusting the pressure on jaws of the testing machine? This debatable question is one of the sources of contention between manufacturers' and consumers' laboratories. The writer has made check tests with laboratories using the same fabric and found there would be 50 to 75 lb. difference in the results on 32-oz. belt duck. Basically, you say something is wrong, well there is—but what? In this discussion the writer will endeavor to analyze this problem.

The function of the laboratory is to report the actual results of test accurately regardless of who is affected. To do this, those in charge must keep the testing machines in perfect working order and study their laboratory practices. However, all laboratories are not managed by people who are skilled mechanics with some imagination, therefore, regardless of how conscientious they may be, they do not always know when a testing machine needs calibrating. Consequently they go on from day to day reporting results which are not accurate. A novice can tell something is wrong when a gear is stripped, but what you are dealing with here are those invisible things that cause machines consistently to test 5, 10, or 15 lb. below other laboratories.

This one thing alone causes more sleepless nights for mill managers and buyers, more money to be spent going to New York, than any other one outside thing confronting the mill. These errors can be eliminated by the laboratories of manufacturers and buyers cooperating in establishing a periodic procedure for checking their testing machines. The American Society for Testing Materials have established a method for checking testing equipment with which we are all familiar but seldom follow. We wait usually until we are rudely awakened by a serious complaint.

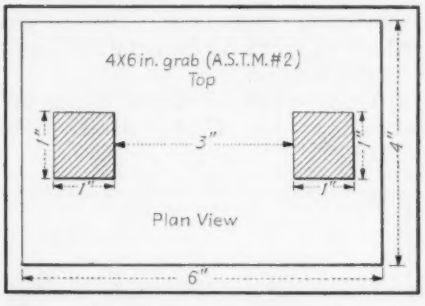


Fig. 1. Standard sample and jaw dimensions and distance apart of jaws for the fabric test.

There probably is a law that prohibits publication of the thoughts of a mill manager when a customer telephones saying that the last 50,000 lb. of style 1492 you shipped on contract 123456, has been rejected because of low tensile strength, when he knows the tensile before the fabric was shipped was above the customer's minimum specification. It is not the grotesque blunders that worry mill managers most; they can be seen and remedied, but it is foolish practices that irritate them so.

Now is the time for all technicians to think along this line since the young fellow whom you have spent years training is not with you now to check the machines—he is on the other front. It is just as important to check the testing machines each morning as it is to check the scales on which we weigh cloth or yarn. Yes, each laboratory should delegate this responsibility to one person. Should he or she be mechanically inclined, it is quite an asset.

Application of too much pressure to the jaws of the fabric testing machine is the principal cause of low breaks. It is necessary to adjust the pressure of jaws on the specimen as the load is applied to improve the break. Probably this can best be illustrated by Fig. 1.

The writer has made a series of tests to determine what actually happens to 32-oz. soft belt duck while being tested as explained below:

Before the fabric is inserted in jaws the gage is 0.073 in. when placed in the jaws and brought up to 650 lb. load the gage is reduced to 0.056 in. or a 23.29% decrease. Now should you put enough pressure on the jaws at the beginning of test the possibilities are greater that the fabric will be cut. All fabrics will not be reduced in gage by approximately this amount, but soft fabrics will.

Fig. 2 shows that the fabric stretches 30% and that the crimp is reduced

(*Continued on page* 160)

LOOMFIXERS' MANUAL

COTTON SECTION, Part 2—Chapter III—Loom Leathers

By IVAR MOBERG

● Loom accessories of leather such as harness straps, jack straps, check-straps, lug straps, lug strap supports, picker straps, shuttle straps, bumper straps, pickers and bunters must be chosen carefully and given proper care so as to obtain maximum useful life. The best leather should be used for all straps because in a loom it is subjected to great abuse.

The average loomfixer has not had sufficient experience with leather to determine its quality, but generally tries it out in the loom. There is no set and fast rule to determine the quality of leather as used in a loom. Some kinds of leather have proven to be useless for loom purposes. In most instances the property of resilience in leather is the most important and second is low elasticity or freedom of stretch. Tearing strength, tensile strength and pliability must be considered. A good quality leather should not crack when it is bent, but the absence of cracking does not necessarily mean that it is a good loom leather. A leather that shears the least is probably the most dependable. A simple test is to make a V-shaped cut at each edge of the leather, leaving the uncut section in the center about the thickness of the leather. A pair of pliers are then used to twist, not pull, the uncut portion until it is sheared off. The number of turns of twist required before it is completely sheared off is noted and compared with other leathers tested in the same manner. This test gives a fair indication of the toughness and tearing strength of a leather.

It is generally recognized that a leather with a hairy grain side is the most suitable for check straps, picker straps, shuttle straps and leather pickers. In tanning, this leather has not been subjected to liming in order to remove the hair. The liming process has a tendency to decompose both the grain and the flesh side of the leather. Since such a leather has a rather low resilience it is not recommended for bumper straps, in which high resilience is paramount. Chrome leather, although great in tensile and tearing strength, is not suitable for most loom purposes since it has great elasticity or stretch and practically no resilience.

Many of the original loom leathers have, in recent years, been replaced by fabrics, rubber-fabric combinations, fiber compositions, etc. Some of these materials have given better performance than leather for certain purposes.

SHUTTLE CHECK STRAPS Most important of all uses for loom leathers is for check straps. Substitutes for leather straps have been tried but have not proven entirely satisfactory. Leather in the check strap must be of top quality as production is dependent to a great extent upon the performance of the straps. Unsuitable leather in check straps may cause such serious loom faults as rebounding shuttles. This defect, in turn, will effect fabric quality by causing a series of cloth defects, such as kinky filling, loopy filling, looping selvages, pull-ins, filling hang-up, etc. It will also cause bang-off, feeler miss, mistransfer, filling stop-motion knock-offs, etc. Also it increases the cost of replacement by shortening strap life. Hence, the choice of check straps is one of greatest importance.

Three types of check straps are shown in Fig. C 15, namely, the regular, the slit and the curved straps respectively. Of these, the regular check strap is the least suitable, as it does not conform with the angle of the picker stick upon impact. As a result of this condition, the check strap presents a very small surface to the impact of the picker stick and causes the stick to cut through the strap in a relatively short time. This faulty condition is illustrated in Fig. C 15, part (a). After the strap once has been cut at its upper edge by the picker stick its remaining life is very short.

The slit check strap, shown in Fig. C 15, presents a double point of contact with the picker stick. Thus the stick has to cut through two edges on the check strap before the latter's life is at an end. This increases the useful life of the check strap, as shown in part (b).

The curved check strap, also shown in Fig. C 15, has the longest useful life of any check strap. When applied to a loom it forms a curved section with its entire width conforming to the angle of the picker stick, as shown in part (c). The large surface presented to the impact of the picker stick makes this strap very durable.

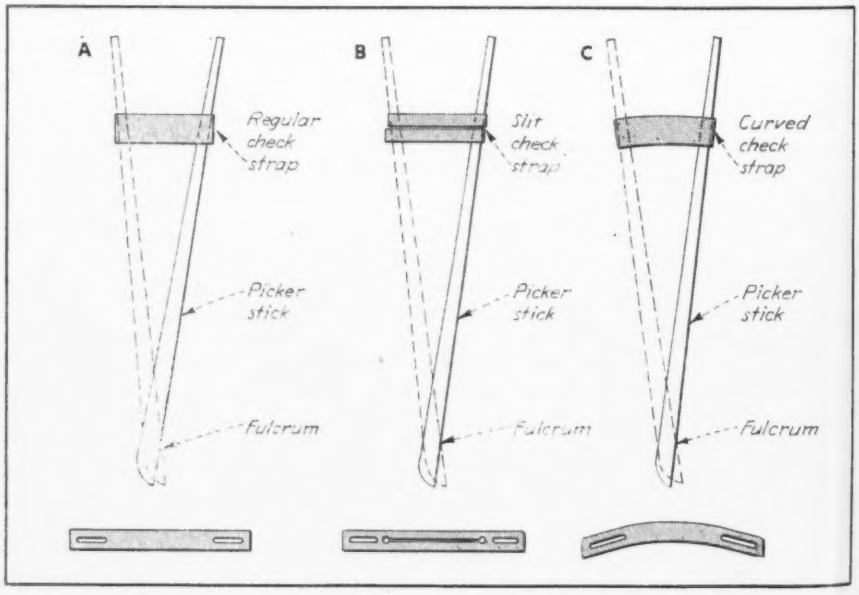


Fig. C 15. Three types of check straps frequently used. Left, regular type; center, slit type; and right, curved type.

FIXING HOSIERY MACHINES

FULL-FASHIONED MACHINES—Chapter XXI—Safety Devices

By WALTER A. SIMOND

● A safety clutch on the camshaft of the Reading machine contains a spring mounted pin A, as shown in Fig. F69. When installing a new clutch pinion or a clutch, check the action of the pin to make sure it functions properly to prevent backlash after engagement with the pinion. And also check to prevent disengagement of the clutch when the machine is inched backward while adjustments are being made. The pin should have proper lubrication to insure free movement.

The spring, Fig. F70, is a part of the safety lockstitch attachment and should be maintained with sufficient tension to keep the picot bars out of alignment with the narrowing fingers except while they are locked in position for picot or lockstitch narrowings.

A safety stop lever is operated by the left-hand narrowing rack so as to prevent an over-travel of the narrowing bars on the footers. The linkage should be adjusted so that the last movement in narrowing will bring the top of the stop-lever (front end) as shown in Fig. F22, appearing in this issue and in Sept. 1941, even with the top of shogging roller *D*, thus preventing further narrowing action. The stop-lever should clear the roller *D* by about $\frac{1}{16}$ in. in the narrowings.

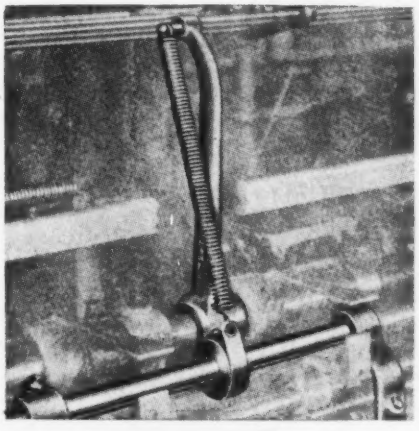


Fig. F70. Spring used in safety lockstitch attachment.

The safety release for the narrowing machine (Houdaille shock absorber) will be discussed in a subsequent chapter dealing with the automatic raising and lowering of the narrowing machine.

Safety bars on the back of the catch-bar prevent its engagement with the sinker butts while the slurcocks are behind the jacks.

A magnetic brake prevents backward motion of the machine and is controlled by a time relay in the control panel. It should be adjusted and locked so it will fully clear the brake pulley on the motor shaft when released. A dynamic brake on the latest machines supersedes the magnetic brake which was used on the older model machines.

The Coulier-motion safety switch is shown in Fig. F71. This device should be adjusted to stop the machine instantly when the Coulier motion fails to function properly. When screw 3 contacts the incline or high dwell of cam piece A, through the action of compound levers 2 and 4, the mercoid switch is tilted, thus opening the switch and stops the machine.

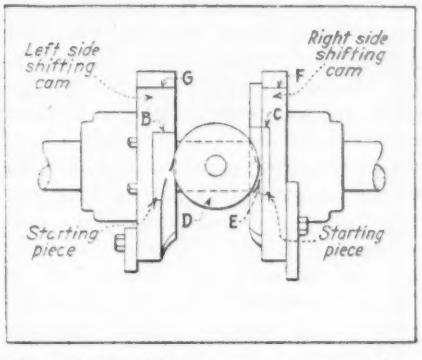


Fig. F22. Shifting cams on Reading machines.

Illustrations courtesy Textile Machine Works

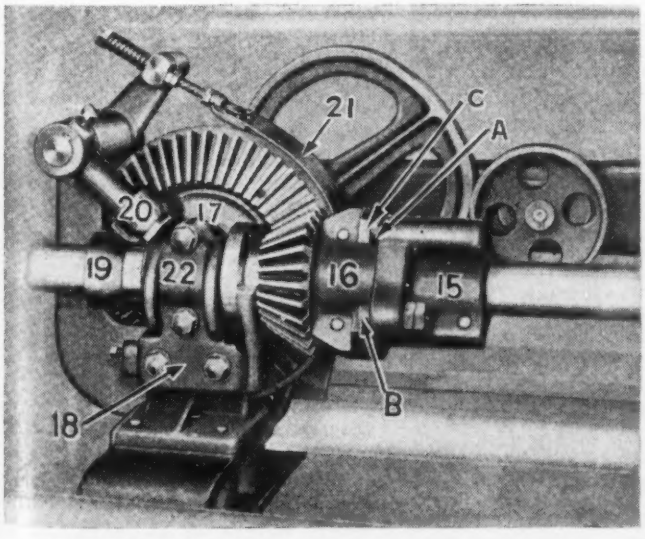


Fig. F69. Safety device on clutch of camshaft.

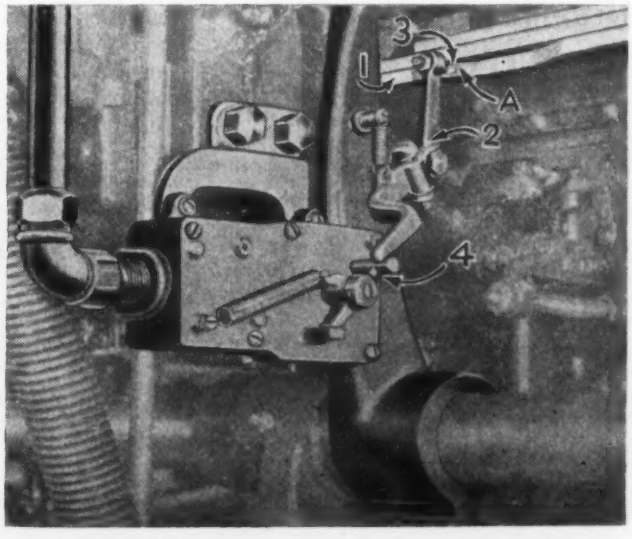


Fig. F71. Switch on Coulier motion to stop machine.

QUESTIONS & ANSWERS

Spinning 30s on Fewer Processes

Technical Editor:

We would like to know if it is possible to spin 30s combed warp yarn by making a 55 to 60 grain sliver or 3 to 4 hank roving, and placing the roving directly in the spinning frames? In looking over our records of tests, we find that we have never tried such a combination, and we wondered if it is practical on a long draft frame with a light unweighted middle roll? It seems to us that the draft that is necessary would be way too much for making a satisfactory yarn on a conventional draft frame. (8947)

We believe that it is possible to make a good yarn going directly from the slubbers to the conventional draft spinning frame. If you will look on page 89 of the April, 1943, issue of TEXTILE WORLD, you will find the complete organization for processing the yarn in 36s. Since the draft will be 16.4 for 36s, it will be somewhat less for 30s; namely, 13.6. Of course, the 36s mentioned is made on a long-draft spinning frame; but if you use a conventional draft frame with a special unweighted middle roll with 4.40 double roving and a draft of 13.6 you should get a satisfactory yarn. You probably will find it necessary to have two processes in the drawing to get the evenness that you desire in the yarn. In addition, we suggest that you card the yarn from 5 to 7 lb. per hr.

Preventing Moiré in Faille and Bengaline

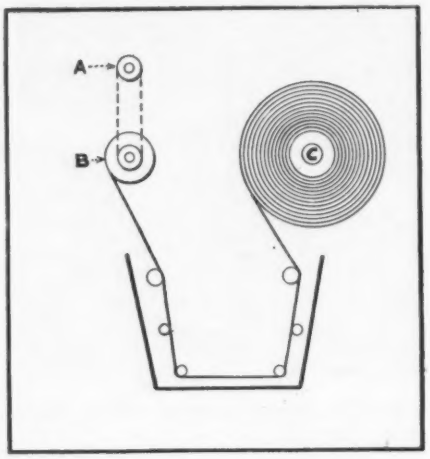
Technical Editor:

We are handling faille and bengaline on jigs. The weight of the fabric varies from 35 to 60 lb. per 100 yd. of material. The construction of the cloth is either spun rayon in the warp and filling or spun rayon warp and cotton filling.

We have rather tensionless jigs and the size of the roll is between 800 to 1200 yd. depending on the weight of the cloth. After dyeing on the jig, the material is usually dried on a Palmer tenter frame within a few hours. We have trouble in that we are getting moiré by handling as described above.

We shall appreciate it if you will give us some advice on how to avoid or remove this moiré. (8941)

Regardless of the type of jig, there is always a likelihood of tight rolls of cloth after dyeing. The pressure of the cloth against itself causes the moiré. The heavier the filling in the cloth, the more prominent is the moiré. This can be prevented by cutting down the tension and pressure on the cloth in the jig. First, the rolls are shelled up very loosely by using a belt arrangement to shell up the cloth as shown in the accompanying sketch. Second, after shelling up the roll, it must not be left lying on any flat surface. That is, the shelled-up cloth must be suspended from a shaft or steel rod by resting the ends of the shaft which protrude from the shell on a pair of wooden horses.



Side view of jig threaded to prevent moiré.

In this way, the cloth does not rest on any surface until it is finally dried. In any case, the cloth should not be left for any length of time, wet on a shell. A side view of a jig is shown in the accompanying sketch; *A* is a pulley with square hole which fits over end of shaft, this is used to hold the shell on which the cloth is to be rolled up; *B* is a similar pulley which fits over driven jig roll. When handling either faille or bengaline no brake should be used at point *C*.

Slasher Cloth

Technical Editor:

Inclosed are two samples of all-wool slasher cloth. One is marked *A*, our cloth, and the other cloth *B* is to be matched. You will notice cloth *A* has more stretch than the other. Will you please advise us what causes this? Our cloth *A* is finished in a James Hunter fulling mill, but is not steamed nor run through a condenser roll. Please advise us to how you believe cloth *B* was finished. Was a different grade of wool used? (8942)

Differences between samples *A* and *B* appear to be caused either by the finishing of the fabrics, by a difference in wools used in the two samples, or by both. Sample *B* seems to be composed of mostly foreign wools, probably South American. The wool is coarser and longer than that used in sample *A*. Cloth *A* is composed of short fibers, some of which may be garnetted stock or noils. These short fibers will felt more readily and may be responsible for the trouble. As information was not given about the finishing of sample *A*, it is impossible to give more detailed recommendations about finishing, especially detailed information concerning the felting operation.

Computing Pressure on Padders

Technical Editor:

Will you advise me concerning the computing of the mechanical weight on a Textile Finishing Machinery Co. M-1 starch or dye pad. I have not been able to locate a method for determining the weight applied to the rolls by the usual system of levers and weights. If you can furnish the above information it will be greatly appreciated and I wish to thank you in advance for your interest. (8937)

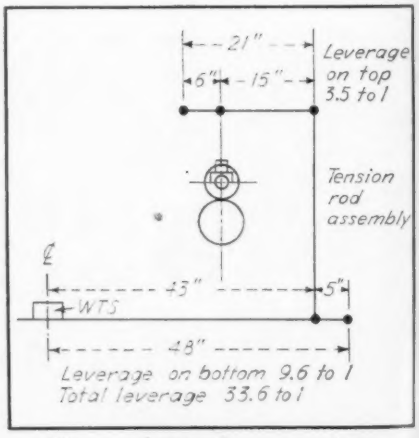


Diagram showing leverage system.

The accompanying diagram can be used in deriving the formula for computing the weight on M-1 starch padders, dye-padders, etc. of the type with-

out roller bearings and with levers from the top connected to vertical rods and again compounded through the bottom of the frame. With different designs of padders there will be different ratios of leverage on both top levers and bottom levers.

Piece Work and Bonus Systems

Technical Editor:

For the last few months I have been starting a new worsted yarn spinning plant and now have everything in operation. I want to install piece work and bonus systems for the following types of work: worsted gilling and drawing, worsted roving, worsted twisting, and worsted winding. If you have any suggestions as to suitable piece work and bonus systems for these operations, I shall greatly appreciate receiving them. (8944)

Although the operations of gilling, drawing, and twisting do not appear to lend themselves readily to piece work and incentive systems, some mills have set up such systems for one or more of these operations.

For the gilling operation, some plants have established a piece rate based on the number of pounds started through the gill boxes. This seems to be a satisfactory basis, provided the moisture content is constant.

For the drawing operation, some mills have used as a basis for piece work payments the revolutions of the front roller as recorded by a counter. However, under any piece work basis, this is a difficult place to control the quality of the work unless some method is provided for inspecting the production.

The twisting operations can be paid on a piece work basis by either the counter method or the pounds produced.

In the cone winding operations, one mill has used piece rates for some years and have found them satisfactory. The rate is determined by time study for each count and the rate applied to each operator's production.

It is quite possible that group incentives could be worked out for these operations by establishing a guaranteed day rate and adding a bonus whenever production exceeds the standard established.

Looms for Rayon Dress Goods

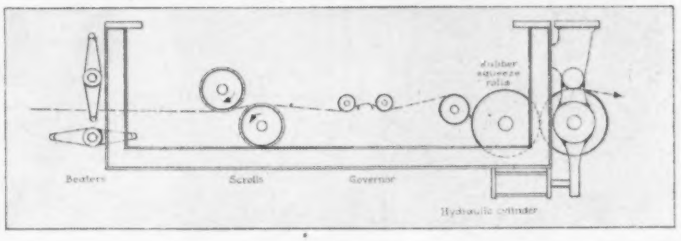
Technical Editor:

We shall appreciate, if possible, the following information on C & K 4x1 automatic, 5-harness dobby, with wooden swords,

Airflow

Your cloth opening and mangle operation into

A ONE-MAN JOB



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Scutcher and Squeezer

2 MACHINES IN 1

"Airflow" your cloth opening and mangle operation into a one-man job. Materials can be drawn directly from the bins, opened and squeezed in tandem with the mercerizing range, dry cans or merely folded into a truck beneath. Our squeeze-roll application allows from 10 to 25% more liquid extraction than other squeezers. Our method of squeezing allows the liquid to escape immediately by gravity. Result—very satisfactory!

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In Canada: B. W. Deane & Co., Ltd., Montreal

METCO
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QUESTIONS & ANSWERS

made in 1926. What are the limitations and the possibilities of these looms?

Do you feel that a 135x72, 100-den. rayon taffeta plaid or a 100x54, 150-den. rayon taffeta plaid could be run fairly successfully on these looms? Also please tell us if a cloth of 160 ends of 100-den. and 112 picks of 150-den. rayon, in a 7 up 1 down twill (8 shaft) weave could be run?

We are trying to determine if this loom can beat in a certain amount of pickage as it has wooden swords and a small sand roller take-up. Can these looms be compared to the old silk loom of about the same age in relation to the beat-up of the filling? In other words, can these looms withstand the packing in of the filling (beat-up) in the common rayon dress goods that are being woven today? (8945)

In some respects the looms in question cannot be compared to the silk loom of the same age. The silk loom with the iron swords, large take-up drum, and heavy girt took plenty of punishment. It could handle a fairly heavy pickage and warp count. Some of these silk looms have been modified and are turning out high-quality rayon fabrics. The chief drawback is that they do not give a high production.

The 4x1 automatic looms with wooden swords are particularly satisfactory for light-weight fabrics. They will give fairly satisfactory results on mixed shirtings. Also, they are suitable for weaving fabrics from rough yarns, which because of their roughness hide certain weaving defects. You should be able to produce the 100x54 taffeta on these looms. The 135x72 taffeta may give trouble, as it has a heavy beat-in.

On the 135x72 taffeta the small take-up roll may cause trouble; that is, the gripping surface on the drum may not be sufficient to prevent slippage. If slippage occurs, tight marks, barre, and bang-offs, may result. The bang-offs, in turn, are likely to result in broken lay-swords.

The 160x112 twill, if run face down, will cause less trouble than the taffeta.

In weaving fabrics having a high pickage, keep the warps shorter than you would on heavy-girt looms. A high warp count often is more severe on a loom than is a high pick count. Also the weave is a factor; and with a taffeta the beat-up is harsher than with a satin or twill of the same pickage.

Producing Filling Yarn

Technical Editor:

I am inclosing sample of spinning filling which we are using in sample made on 68-in. C & K C4 dobby loom. We are making this filling on the spinning frame, which we are using as a twister with the top roll

The Jacket That Went To Sea

Life jackets to help protect the wearer's life in the water as well as from fire hazards, are now standard equipment for U.S. Navy men at sea.

These flame-repellent, water-resistant garments are made of plastic-impregnated fabric. Their design was based on combat reports.

The bulk and size of the jacket also gives protection against flying splinters during battle action. Specially kapok stuffed collars hold the head of an unconscious man out of water.

The Textile Industry is helping to protect our boys all over the world . . . supplying equipment that will stand up under any test.

***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

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All of our facilities not required for Ordnance production are available to help you solve your present finishing problems, and aid you in your post war plans. Let us serve you now.

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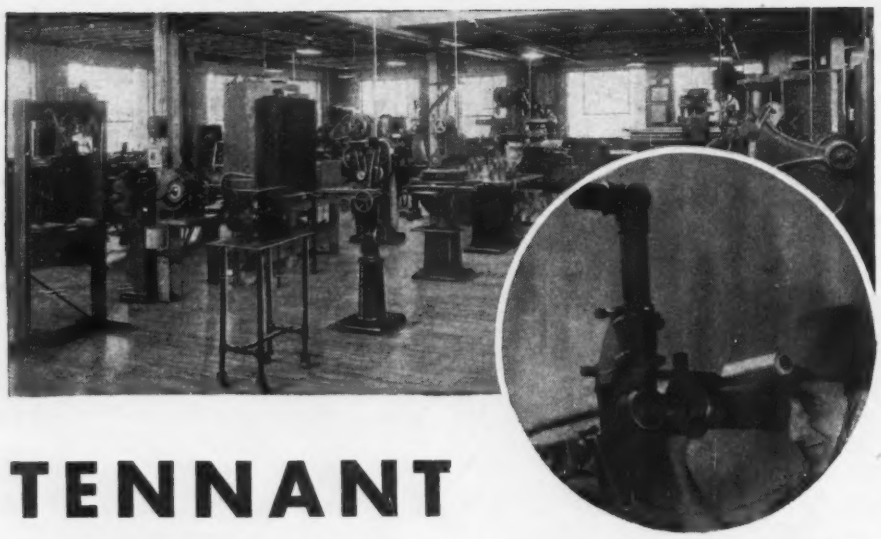

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TENNANT Precision Equipment and Engineering Skill—developed in making TENNANT Floor Machines—is proving its exacting accuracy standards in manufacturing gun sights for the U. S. Armed Forces.

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Our field representatives are handicapped somewhat by travel restrictions in making personal calls. However, when you need help, Tennant service is available without cost.

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at the Battle Fronts

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in War Materiel Plants

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removed. Our filling waste is running rather high, as we have difficulty in making a uniform bunch. It has been suggested that we could make a saving by putting the filling on a filling bobbin on some type of winder.

I shall appreciate it if you would let me have your opinion as to the best way to make this filling from the standpoint of waste, quality, and cost. (8940)

Your method of handling this filling yarn at present is probably the least costly. However, from the standpoint of quality and weaving efficiency it is not the best.

It would be far better to twist this yarn on a regular large-package machine then wind on a modern high-speed automatic filling winder, of which there are two or three different types available. These automatic filling winders will increase the yardage put onto a standard filling bobbin—in many cases, up to about 50% above that run on at the filling frame. This means a reduction in work for the battery hands in the weave room. Also, most of the yarn imperfections will be caught at the rewinding and a better quality woven fabric will be the result.

It should be quite possible to remedy the matter of bunch building on the filling frame if that alone is the cause of trouble. There are available various mechanical devices or bunch builders which will form a bunch of definite and uniform length.

Textile Industries of China and Japan Major Post-War Problem

The textile industries, as the outstanding industries of China and Japan, must occupy a central place in any consideration of the part to be played by these two Oriental countries in the post-war economic world, stated Fessenden S. Blanchard, president of the Textile Research Institute, Inc., in an address at a meeting on Oct. 28 under the joint auspices of the Institute and the Research Bureau for Post-War Economics. These industries constitute a problem, and perhaps in the case of China, a great opportunity for America, Mr. Blanchard stated. They are a challenge to our economic statesmanship. China needs exports to pay for its industrial development in which textiles will play an important part. Japan needs textile exports for its economic survival. Yet the United States cannot afford to let the prosperity of its own vital textile industry be undermined by the competition of low-standard countries.

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Johnson's DRAX

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Here are the facts! DRAX is an aqueous emulsion of waxes, aluminum salts and emulsifying agents, developed for textile finishers by S. C. Johnson & Son, Inc.

Due to a special method of regulating the colloidal particle size of the emulsion during its manufacture, DRAX possesses important characteristics not found in many water repellents:

1. Drax provides high water repellency for all textile fabrics
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6. Drax provides evenly distributed, uniform application on entire run of cloth
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Also available is DRAX 1860PMA, a special formulation to provide mildew resistance. DRAX 1860PMA does not leach out readily. Get complete information on these special water-repellent formulas. Write S. C. Johnson & Son, Inc. Do it *now*.

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WRITE FOR DARNELL MANUAL

(Continued from page 151)

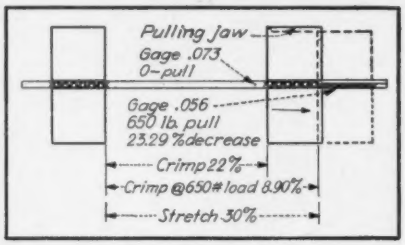


Fig. 2. Side view of jaws of testing machine with details of its action on the duck sample.

59.45%. As the crimp is pulled out reducing the thickness a more representative break can be secured by adjusting the pressure on the jaws.

Some technicians contend that the jaws of a testing machine should never be touched after applying the load. This is 100% correct when dealing with materials which are not soft and flexible. Some laboratories use friction tape on jaws of testing machines, this is clumsy at best and slows down the testing operation considerably, however it lessens the possibility of the jaws cutting the fabric.

A study of what actually happens to the fabric when the load is applied has convinced the writer that a skilled operator can obtain considerably better and more representative breaks, test more samples, and be more accurate by adjusting the pressure on the jaws of testing machine as the load is applied than by using friction tape or applying all the pressure on the jaws before applying the load. The writer feels that most technicians agree that the strength of a fabric can not be increased on the testing machine. One thing to keep in mind is to make the adjustment at such a time and in such a way as not to interfere with application of load.

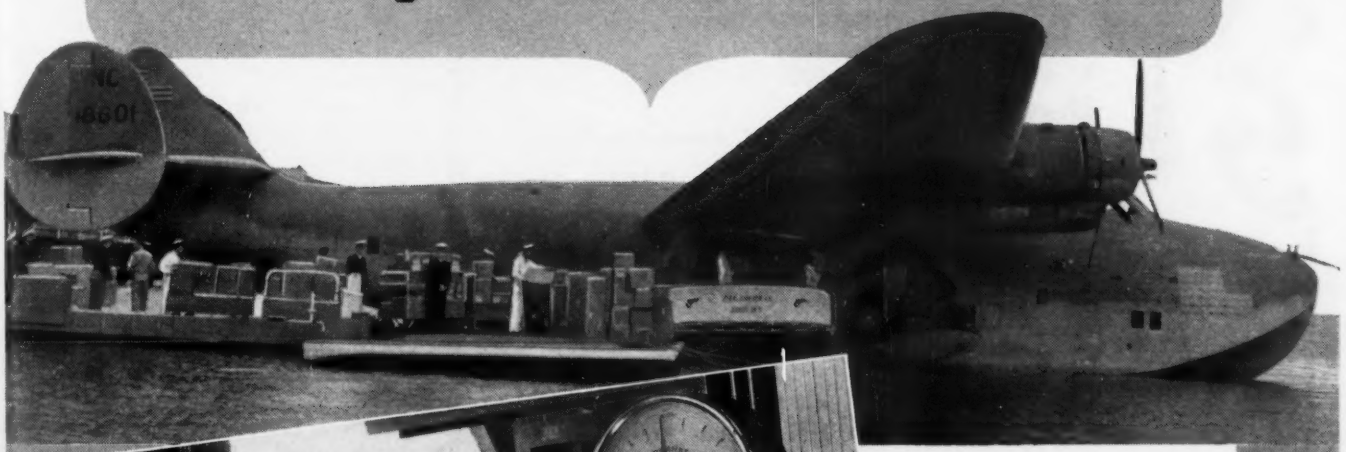
If anyone has a better method of improving the fabric break test I would like to know what it is. Does anyone think the methods I have outlined would not be applicable? R.W.M. (Ga.)

More on Training Loomfixers

We have not had to consider the use of women as loom fixers at our mill as we are on tire cord, osnaburg and army duck. We have only a small percent of the number of looms that a mill with the same spindle capacity making plain and fancy goods would have.

However, I have given this subject considerable thought since I read the question in the June issue of Mill

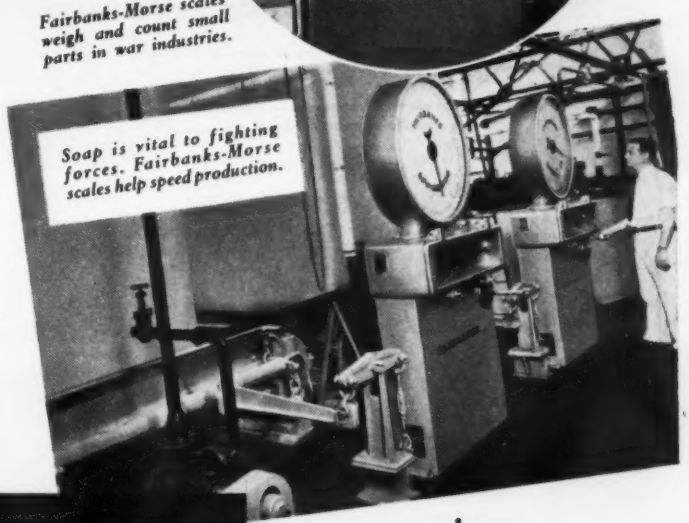
In Wartime Production . . .
It's *Every Ounce* That Counts!



Fairbanks-Morse scales weigh cargo and crew before clipper ships take off for unannounced destinations.

"Coal is Ammunition"—Fairbanks-Morse scales guard against waste.

Fairbanks-Morse scales weigh and count small parts in war industries.



• OUNCES make pounds and pounds make tons . . . *millions of tons* of wartime production that pass over Fairbanks-Morse scales to help speed the allies to victory.

Food . . . steel . . . munitions . . . chemicals . . . guns . . . tanks . . . textiles . . . *anything and everything* that goes to war must be weighed. It must be weighed accurately . . . quickly—at speeds which human hands can't match, and with accuracy that human eyes can't equal. That's why industry, from the smallest to the largest, finds Fairbanks-Morse scales indispensable in keeping production lines rolling.

If you have weighing problems *now* or if you are *planning ahead* . . . let the Fairbanks-Morse Scale Engineering staff help *you* as it is helping so many others. Write, wire, or phone Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

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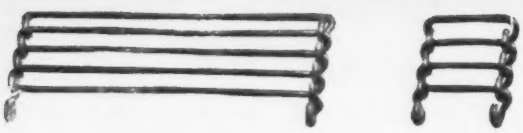

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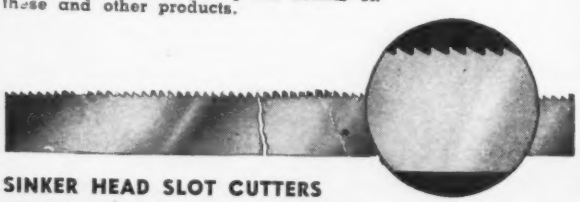

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The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

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MILL MEN'S ROUND-TABLE

Men's Round Table and I don't think I like the idea. In the first place, it would be departing from the fundamental plan of teaching a person to fix, namely by "Following the Drive." I think a specialist should have a thorough knowledge of the subject as a whole, and the only way to do this is to put first things first while learning.

It is possible that the plan will work out satisfactorily, but if it was my problem I would prefer to put a woman learner with an experienced man, and let him take on more looms with her aid as she became familiar with looms and the general idea of fixing. Care should be used in the selection of women for if they are not interested to the point that they won't mind getting grease on their hands, and their fingernails broken, they won't ever be much benefit to the company.—G. F. (*N. C.*)

Absenteeism in England

Here in England absentee workers are dealt with first by educational methods, and if this fails disciplinary action is taken. It is usual for workers losing a certain amount of time each month to be brought before the shop committee which is composed of fellow workers chosen by the workers themselves. This committee tries to get an improvement by talking to the worker, presenting arguments for good attendance, and, if there is a legitimate excuse, try to find some remedy.

If the worker's record for the second month shows no improvement, the offender is sent to an official of the Ministry of Labor who usually prosecutes and the fine imposed is usually severe. When the case is referred to the Ministry of Labor, action is out of the hands of the firm whose only power of action on the worker is during the first month through the shop committee. If the absence is due to illness, old age, or unforeseen circumstances, these facts are noted in the reports to the Ministry. In addition the time office reports the time lost by the worker.

Usually the shop committee gets the required improvement and it is seldom that a case is referred to the Ministry.

We would be interested in knowing more about the practices that are current in the mills in the United States for reducing absenteeism. Will some executives please let us know what their practices are through the Round Table?—W. E. Warner (*England*)

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Made by DENMAN TIRE & RUBBER COMPANY
Makers of Famous DENMAN LOOP PICKERS

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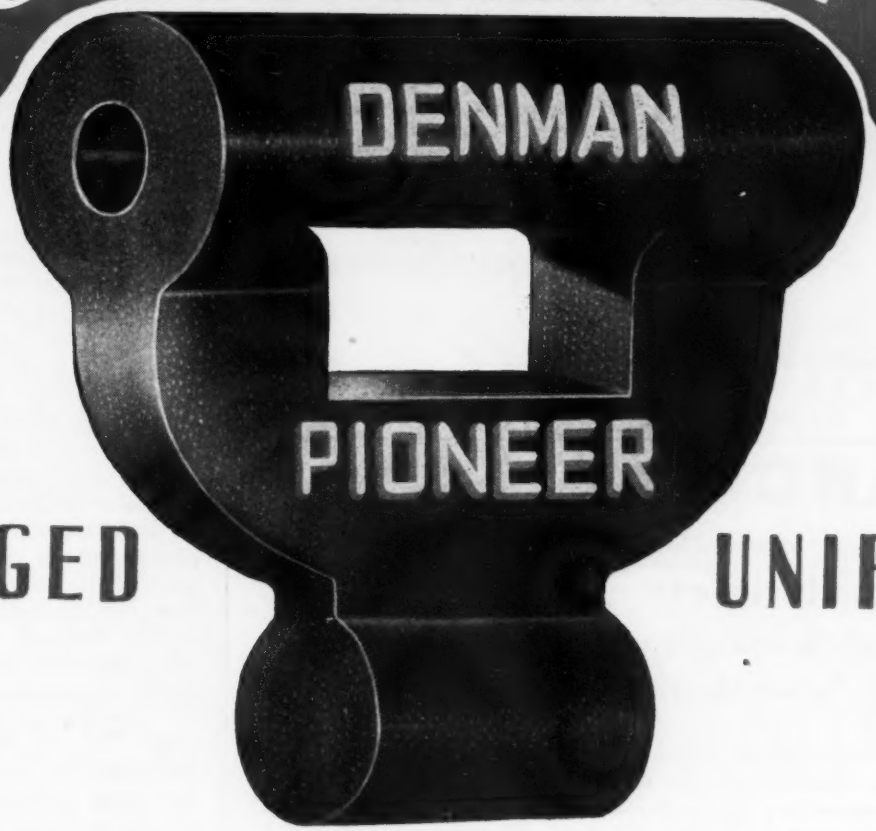

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★ REQUIRES NO DIPPING
★ SPECIAL SLIDE ROD BEARING
★ LONGER WEAR - FEWER STOPPAGES
Mean LOWEST COST PER LOOM, PER YEAR

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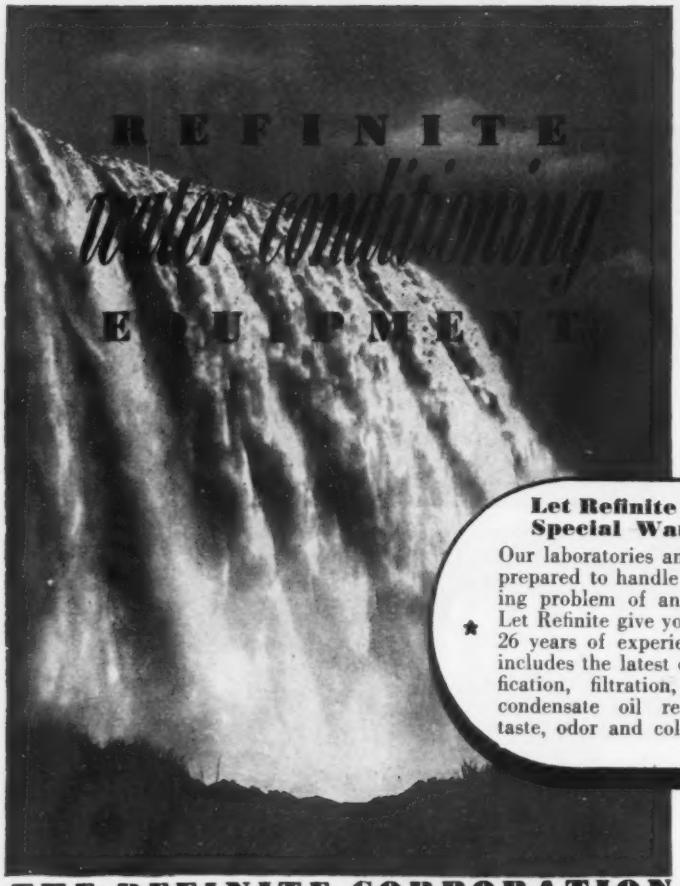

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—has given us
Air Power to win the war

—OUR RESEARCH will give you
Air Superiority to win the peace

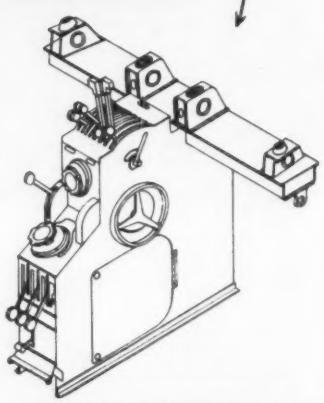
Post-war industrial air-conditioning must afford more comfort for labor, hold humidity and temperature *constant and uniform* for production.

For industrial air-conditioning equipment to be *practical* in meeting these expanded demands, *it must be efficient —it must be flexible.*

These are the ends toward which Bahnson research is working—to afford you *Air Superiority* in the peace.

The Bahnson Company has taken its place in the war effort by manufacturing material for the Air Corps and Army Ordnance.

Air-Conditioning Equipment is still available on priority ratings and Bahnson service men are available for any air-conditioning troubles.



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Technologist in Postwar

(*Continued from page 89*)

adoption of large-package spinning. Wider dress-goods fabrics are calling for the more general adoption of wide looms. More cotton mills are likely to adopt special equipment, including worker-and-stripper cards, for handling long-staple rayon, and various fiber blends.

Three-dimensional seeing, so-called, is likely to govern the painting of equipment for greater efficiency. General adoption of fluorescent lighting will aid efficiency also. Air-conditioning and windowless mills will contribute. Streamlined machinery and attractive mill rooms will be used to raise morale. Machinery may be covered with cellulose-acetate films to prevent corrosion in transit or during long idleness.

And so the new developments pile up.

COMPETITION. This matter of rationalizing our manufacturing processes in the textile industry, increasing the efficiency of the mills, and thereby reducing the cost of our products is an important one with respect to our competition with other industries. We cannot close our eyes to this competition. Paper window curtains, for example, threaten the welfare of textile curtains in the same way that discardable razor blades injured the business of the old straightedge. However, in considering this example, let's not forget that the safety-razor blade is now threatened by the electric razor. Time marches on, and we cannot consider any product or any substitute for that product as permanent.

Let me say in passing that I am not a subscriber to the theory that the textile industry as we know it will be done away with—at least in this generation or the next or the next. My conviction on this score was strengthened a short time ago when I was asked to define the textile industry. Surprisingly enough, I was unable to find a good definition and had to devise the following, which I think covers the subject: "The textile industry is that which produces from raw fiber those products in which, previous to the finishing operations and commonly thereafter, the individual fibers remain as separate entities, free to move to some degree independently of each other." It is largely this freedom of the fibers which, in my opinion, gives textile materials the peculiar handle and flexibility or drape which are such important characteristics of most of them.

It is where our products become rigid as the result of some finishing

restore masonry walls with non-critical materials

no priorities required

Many masonry surfaces are being neglected today under the impression that their repair must be put off for the duration. This delay and greater expense later is entirely unnecessary.

WATERFOIL, a scientific contribution to masonry protection, was developed by the A. C. Horn Laboratories after 10 years of laboratory and field development, and meets today's needs. It is manufactured of irreversible inorganic gels, which "weld" themselves mechanically and chemically to concrete, stucco or brick surfaces. These materials are non-critical. They require no priorities and are available now.

WATERFOIL is not just a coating like paint, but it becomes an integral part of the masonry surface — forming a hard, heavy, microscopically fine-textured protective surface — which can be applied by any careful workman. No primers are used. WATERFOIL is backed by a nationally known company with 47 years experience. Thousands of important buildings and millions of square feet of surface have been protected by Horn Products. Tell us of your masonry conditions — we will give you our expert advice. Literature on WATERFOIL is available — write us today.

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BUILDING MATERIALS DIVISION
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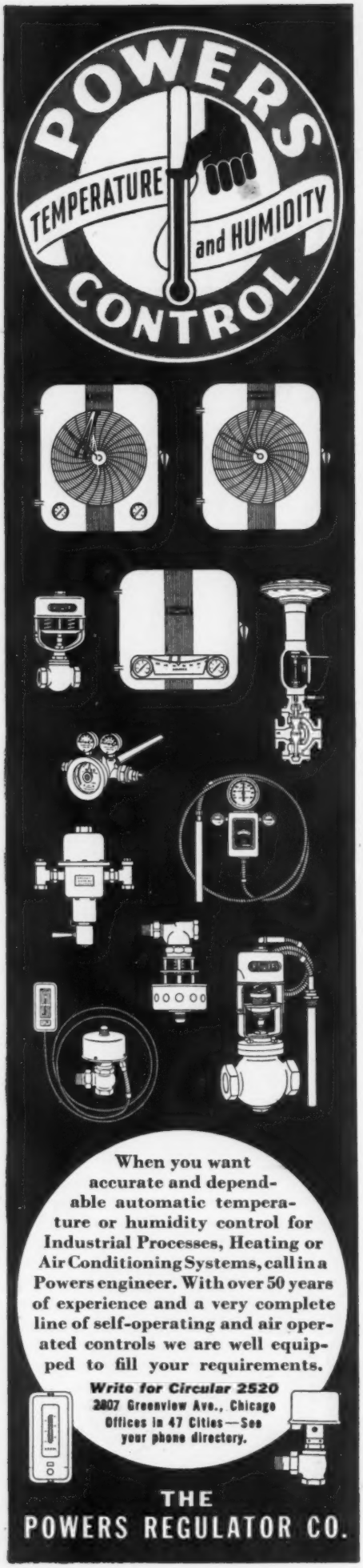
ESTABLISHED 1897

A HORN PRODUCT

WATERFOIL

THE UNIQUE TREATMENT FOR EXTERIOR MASONRY SURFACES



When you want accurate and dependable automatic temperature or humidity control for Industrial Processes, Heating or Air Conditioning Systems, call in a Powers engineer. With over 50 years of experience and a very complete line of self-operating and air operated controls we are well equipped to fill your requirements.

Write for Circular 2520
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Offices in 47 Cities—See your phone directory.

THE
POWERS REGULATOR CO.

process or in application, or where the characteristic handle and flexibility are not wanted, that we run into competition from other industries. Since textile manufacture involves many more processes than does the manufacture of most competing products, it behooves us to consider carefully in each given case whether it would ever be mechanically possible to meet the competition at an equal or lower price. If we find that it is not possible, we must stick to the types of products in which we can definitely offer superiority or lower cost. As long as we stay within the confines of the textile industry as I have endeavored to define it, we are relatively safe.

SOME THREATS. Just possibly the spinning operation can be replaced some day to a limited extent by the production of a yarn built on the principle of the chain, with perhaps minute fibers individually linked. The principle was long ago applied to fabric manufacture, through the knitting operation. For those of you who want to supplant the staple yarns as we now know them, I give you the chain. When you go into the laboratory, take a good microscope with you and perhaps also some electronic equipment.

Now of course there are those who say that eventually something corresponding to a fabric will be turned out in sheet form, without benefit of spinning or weaving, and which will have the handle, drape, flexibility, and porosity which we now offer. This characteristic of porosity I have selected from the many textile properties I have not previously mentioned, for the reason that we know that an ordinary sheet of rubber cannot be worn comfortably for clothing, because it does not permit the body to "breathe." I own, for example, a very light raincoat which it is no burden to wear; but I wear it as little as possible, because after having it on for an hour or so I find my clothing drenched with perspiration.

I did not include porosity among the major properties of textile materials, because it is possible to obtain porosity without having individual fibers which move independently of each other, just as it is possible to obtain thermal resistance, strength, and many other properties. It is even possible to obtain high porosity in metals by adding a volatile to the powdered material before the sintering process. Self-lubricating bearings are made that way, and a sheet of plastic or other material can be so made. I must point out, however, that in the bearing the metal remains rigid, and the question arises in my mind as to

He's Our Boss NOW

Uncle Sam is getting all of our production efforts for the duration of the War.

But our research and development work is still going ahead and you will profit by its results in greatly improved machines for yarn throwing, as soon as peace returns.

U. S. ACME TWISTERS FOR SPOOL OR HEADLESS PACKAGE

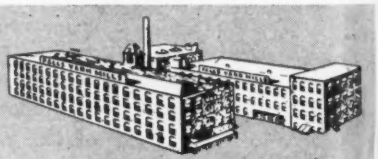
U. S. JUMBO FACE DRIVE TWISTERS FOR LARGE HEADLESS PACKAGE WORK

U. S. ACME DOUBLER TWISTERS—LARGE PACKAGE

U. S. REDRAWS AND SPOOLERS

U.S. TEXTILE MACHINE CO

SCRANTON, PENNSYLVANIA, U. S. A.



ESTABLISHED 1904

Falls

MEANS THE BEST IN

YARNS

MANUFACTURERS OF FINE WOOLEN & SPECIALTY YARNS

Falls Yarn Mills

WOONSOCKET RHODE ISLAND

SELL DIRECT

STANLEY PORTER—NEW YORK
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Pioneers in water-dispersed materials

In addition to long experience with latex and water dispersions of crude and reclaimed rubbers, we disperse many elastomers and compositions applicable to use in adhesives, saturations, coatings and dipped goods. Our laboratories and plant are at the service of industry.

Dispersions Process, Inc.

symbolizing research and development in water dispersions

(under management)

UNITED STATES RUBBER COMPANY

1230 Sixth Avenue, New York 20, N. Y.

GOOD NEWS for TEXTILE PLANTS!

Armstrong HUMIDIFICATION

increases production, maintains quality, cuts breakage, reduces "seconds"

END THE WINTER HEAT DRY AIR PROBLEM! Armstrong Humidifiers are in carding, drawing, combing, spinning and other operations to increase production, maintain uniform quality, better wear and superior finish, and lessen breakage and seconds. Also invaluable for maintaining healthful, comfortable working conditions in plants and offices.

Low cost; as little as $100, complete, for 40,000 cu. ft. capacity. Simple, quiet, practical; connected to steam lines like a unit heater. Fully guaranteed. A real answer to the humidification problem. Nothing else like it on the market! Write for literature.

ARMSTRONG MACHINE WORKS
872 Maple St., Three Rivers, Mich.

AS LOW AS 2 CENTS PER HOUR!

Write for Bulletin

ARMSTRONG
STEAM TYPE
HUMIDIFIERS

whether a porous sheet of synthetic material can be developed with so much pliancy that it will have the characteristic feel and flexibility of textile material.

CONSUMER VIEW. Never forget that the consumer in most cases buys textiles for those particular qualities, and that furthermore the consumer is very sensitive to variations in those qualities as between one textile and another. They are qualities which it is practically impossible to measure accurately, as psychology plays some part in their measurement. I am very skeptical that a porous sheet can be developed which will meet the wishes of the consumer for most of the purposes which textiles serve.

But I do not mean that all new fabrics must have the exact handle and feel and drape of their predecessors. Far from it. So long as the material remains essentially textile in character, it is perfectly appropriate—and even very desirable—to develop new handle and new pliancy.

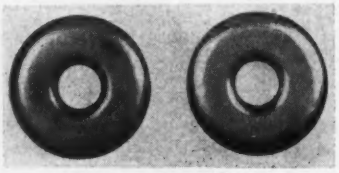
Well, gentlemen, there is the picture. Confused as most of that picture may be, one fact emerges from it very clearly. And that is that prosperity in the postwar era and in the post-postwar era depends on the technologist—on you, gentlemen—and may fortune smile at you and encourage you to mighty efforts in successfully attaining the goals which lie before you.

•

Rocky Mount Mills Marks 125th Anniversary

In commemoration of its 125th anniversary, Rocky Mount (N.C.) Mills has issued an illustrative brochure tracing the history of the company, describing its part in the war effort, and outlining its postwar plans. Rocky Mount Mills is believed to be the first cotton mill to be established in North Carolina, and is known certainly to be the oldest mill in that State still operating at its original site. Although the company has shown considerable expansion and now has in operation 43,000 spinning spindles, the policy of the company has been based on the belief that efficiency, rather than size, is the keynote to success. Rocky Mount specializes in the production of plied weaving yarns in counts ranging from 4s to 30s. It maintains a testing laboratory and experimental production unit which has proved invaluable in the adaptation of company products to specific customer requirements. At present 95% of the output of the mill is going into war products. Postwar plans have already been formulated for keeping the company up to date on engineering.

Higher Tension Efficiency with WAYNE TENSION DISCS



Wayne tension discs provide uniform tension with a minimum of wear. Higher production efficiency is assured. Constructed of hardened chrome plate steel. Write today for complete details and the savings offered by Wayne discs.

Wayne Manufacturing Co.
Honesdale, Pa.
Manufacturers of Textile Mill Supplies

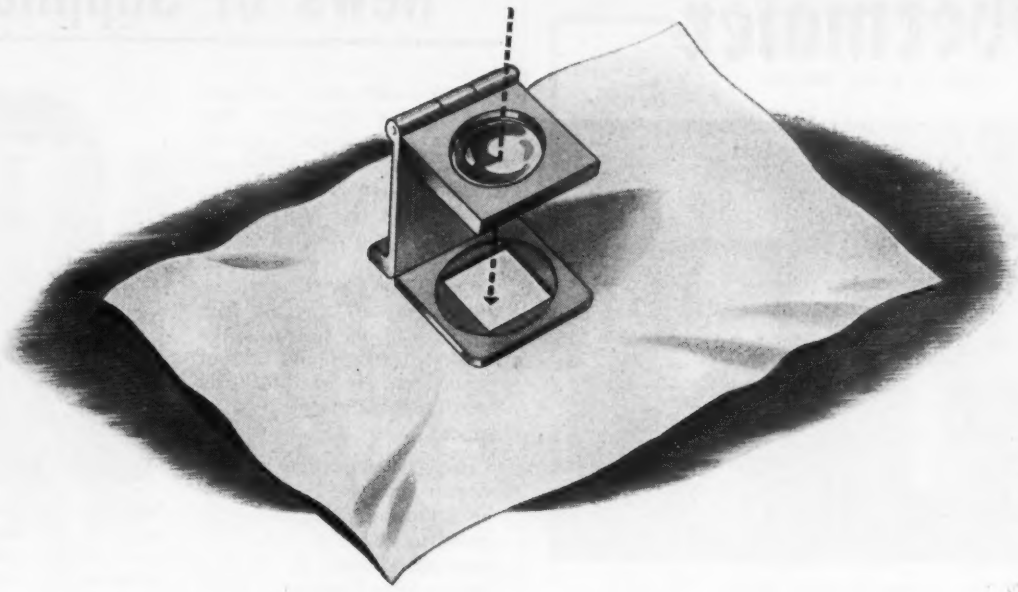
LAZENBY WINDERS

- COP
- BUTT
- BOBBIN

KEEP your machines at top production with Maintenance and Repair Parts from our stock.

And because Genuine Lazenby Parts are manufactured according to specifications and design drawings, correct fit and satisfactory operation are assured.

F. A. LAZENBY & CO.
31 E. Lee St. Baltimore, Md.



Check the Results . . . Because

You Can't SEE a Finish

Twitchell Oils 3X and RX have important advantages in Sanforized or regular cotton finishes—

1. Twitchell Oils 3X and RX are made to promote uniform and instant wetting back under the water sprays of the sanforizing machine, *and* to provide lubricity throughout the process. This dual property increases the speed and efficiency of this operation.

2. Fabrics containing 3X and RX retain their wetting back properties indefinitely and your production schedules can be made more flexible through the safe storage of treated fabrics. Since neither oil contains any oxidizable products no oxidation or rancidity will develop.

3. Both Twitchell Oils, 3X and RX are also stable against high temperature drying and will not cause gumminess or tackiness on the sanforizing shoes, in the palmer blanket, or in the finished goods.

4. Finishes containing Twitchell Oils 3X or RX impart a very desirable feel to the goods.

5. Twitchell Oils are economical, they contain no water.

6. Like all Emery products, 3X and RX are produced under strict laboratory control to assure uniformity at all times.

Further information on specific applications to different kinds of fabrics utilizing a range of sizings will be sent immediately upon request.

LABORATORY CONTROLLED THROUGHOUT PRODUCTION — EMERY INDUSTRIES INC.

EMERY INDUSTRIES, INC.

MAKERS OF STEARIC AND PALMITIC ACIDS, OLEIC ACID, FATTY ACID DERIVATIVES, TWITCHELL PRODUCTS, GLYCERINE, PITCH, CANDLES, SANITONE

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Established 1840

New England Office
187 Perry Street
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New York Office
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New York, N. Y.

BUY WAR SAVINGS STAMPS AND BONDS EVERY PAYDAY

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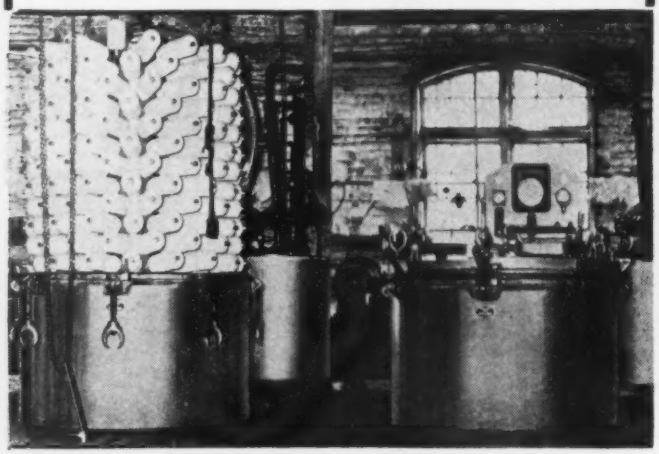
REG. U. S. PAT. OFFICE



Model KRAG 407 Twin Package Spindles, Machine with Carrier.

The spindles on the model KRAG are placed horizontally on carrier, which makes for easy loading and unloading.

Two packages are loaded on one spindle, so that any desired flow of dye liquor can be obtained by the use of larger capacity pumps.

This model is ideal for the dyeing of tubes of cones as the outer circumference of the loaded cones increases in direct proportion to the larger bottom diameter of the tapered form of the cones.

The special feature of this machine is the built-in indirect heating cylinder which makes for even temperatures throughout the entire bath and consequent level dyeings of any shades sensitive to heat.

At the same time, it reduces the liquor ratio to a minimum thereby producing most economical dyeings, especially with vat colours.

Builders of

Cotton & Wool Dyeing Machines

for

Beams • Packages • Rawstock • Skeins

•

Centrifugal Extractors and Driers

•

Centrifugal Pumps

•

Rayon Cake Dyeing Machines

•

Dye Spindles and Perforated Tubes

Stainless Steel Construction

★

All Subject to Required Priorities

★

Standard Fabricators

INCORPORATED

355 WALTON AVENUE • NEW YORK, N. Y.

Replacement Parts For Existing Machines Can Be Furnished

News of Suppliers

A. B. Carter, Inc., Gastonia, N. C., has appointed Alex Haynes as technical engineer representing Carter Traveler Co. in Eastern North Carolina and Virginia. He was formerly with Ferguson Gear Co. R. Thomas Smith is now representative for Carter Travelers, Boyce Knotters and the Mill Device Co. in Georgia, Alabama, Mississippi and part of Tennessee. He was formerly superintendent of Arnall Mills, Sargent, Ga.

Hooker Electrochemical Co., Niagara Falls, N. Y., has made the following promotions and appointments in its Sales Department: Robert E. Wilkin, Eastern Sales Manager; Lauren B. Hitchcock, Manager of Sales Development; S. I. Anderson, Assistant Eastern Sales Manager; S. F. M. Maclaren, Assistant Eastern Sales Manager; G. F. Reale, Special Sales Supervisor; Wm. F. George, New York District Sales Supervisor; Wm. H. Monsson, Midwestern Sales Supervisor.

Gardner-Denver Co., Quincy, Ill., has appointed R. H. Rodolf as manager of its Pump and Compressor Division, following the death of R. J. MacFarland. C. M. George is Mr. Rodolf's assistant.

Gallowhur & Co., New York, has appointed Dr. Irving Hochstadter as its research administrator. Company manufactures Skol, Skat, the newly-developed Puratized process for

VERNON A. GRAFF, now manager of the Atlanta plant of Steel Heddle Mfg. Co., succeeding the late H. Raiford Gaffney.

treating textiles and other materials to inhibit the growth of mildew-forming micro-organisms. Dr. Hochstadter was formerly president and technical director of the Hochstadter Laboratories, Inc., and of Still & Van Siclen, Inc.

Emmons Loom Harness Co., Lawrence, Mass., manufacturers of heddles, reeds and other harness equipment, has recently appointed N. Marvez as its Venezuela agent. Mr. Marvez is located at Apartado 391 in Caracas. Besides representing Emmons, Mr. Marvez also represents Wellington Sears & Co., Manufacturers Textile Export Co., Noville Products Co.

Harte & Co., New York, have appointed Allan C. Shed-

SCOTT & WILLIAMS, Laconia, N. H., receives Army-Navy "E" award. Left to right, Col. Harrison G. Reynolds, Provost Marshal of the Army Air Corps, who made the presentation; President Ralph B. Thompson of Scott & Williams; Governor Robert O. Blood of New Hampshire; Plant Manager W. A. Camp; Commander J. D. Ivey, who presented the E pins; Mayor Robinson Smith, of Laconia; Mrs. Agnes Belford, employee representative; Staff Sergeant Robert Helb, African campaign hero; treasurer Harry J. Kelly of the company; Robert Hurd another employee representative and father of seven army boys.

WANTED

We could be wishy-washy about this, and say "please"—but instead, we will come right to the point. We want, we invite—and just plain ask your consideration of "Cravenette" water repellents.

Here are the facts about our water repelling preparations for use in your own plant. For example, our "Cravenette" CBC imparts water repellency to all-wool, or all-cotton fabrics by the one-bath method. It is stable under difficult conditions and wide temperatures. It is accurately compounded and liquid at high and low temperatures. It may be applied either from a washer or a standing bath; is odorless, and does not perceptibly effect the feel or looks of the fabric.

But what would be the value of all these virtues if your customers were unaware of them? There, sir, is the extra merit in "Cravenette" water repellents which you get at no extra cost. The use of the trademark "Cravenette" to identify the water repelling treatment given to your fabrics will assure the confidence that during more than 50 years has been built up among manufacturers, merchants, and the public. Yes, we want your consideration—and so do they!

If you would like a sample of our "Cravenette" water repellent, or other particulars, we will be glad to comply promptly!

Your fabric treated with

REG. U.S. PAT. OFF.

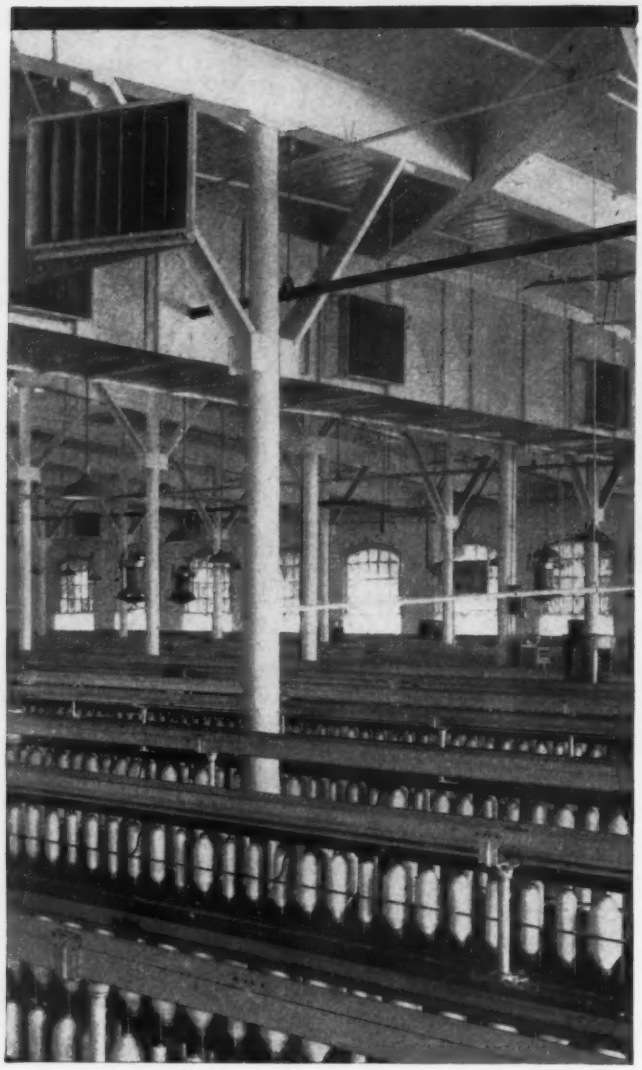
CRAVENETTE

water repelling preparations

SHEDS SHOWERS

"CRAVENETTE" is a trademark of the Cravenette Co., U. S. A., manufacturers and sellers of water repelling preparations. The Cravenette Co., U. S. A., and its licensed agents, apply these preparations to fabrics and garments.

CRAVENETTE CO., U. S. A.
CHEMICALS DIVISION
8th and Madison Streets, Hoboken, N. J.



In Modern Production

Parks Certified Climate

REG. U. S. PAT. OFF.

is not a textile accessory.

It is an integral part of modern high speed textile operations. It has been known to pay for itself in less than a year.

Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

lin and Charles P. Beagan, both major executives of the company, to carry on also the activities of the president's office during the temporary absence of Fred S. Strauss, the president, on military duty.

Whitin Machine Works, Whitinsville, Mass., have appointed Carl D. Brandt as director of research in the cotton and staple rayon division.

Sonoco Products Co., Hartsville, S. C., was formally presented with the Army-Navy "E" Award on Nov. 4. The Hartsville plant, which is the main plant and general office, has been actively producing a variety of special products for both the Army and Navy, as well as acting as sub-contractors on other war products. It is estimated that 90% of the total production in all Sonoco factories is either directly or indirectly concerned with the war effort.

Rayonier, Inc., New York, has announced that domestic prices of its dissolving pulp grades, approved by price control regulations, until further notice are as follows: Raycca, $110; Purayonier, $110; Hicolor, $85; Cellunier, $80. Prices are per ton (2000 lb.), Atlantic seaboard basis.

Procter & Gamble Co., Cincinnati, Ohio, has elected Neil H. McElroy, manager of the company's advertising and promotion department, to the board of directors. He was subsequently elected by the directors to the office of vice president in charge of advertising and promotion. He joined the company in 1925 as a mail boy, and progressed to head of the advertising department in 1940. The company also has elected Thomas J. Wood as vice president in charge of sales, and a director of the company. He fills the vacancy caused by the death of Clarence J. Huff. Mr. Wood joined the company in 1919 as a salesman in the St. Louis district. He has been general sales manager since 1938.

Diamond Alkali Sales Corp., Pittsburgh, has absorbed five distributors as follows: Consumers Chemical, 12 South Twelfth St., Philadelphia, Pa., C. F. Wolters, Jr., district manager and G. J. Soren, assistant district manager; Tri-State Chemical Co., 668 South Main St., Memphis, Tenn., and 2307 First Ave., North, Birmingham, Ala., E. A. Jones, district manager; Sunshine Soda Co., Inc., Cleveland, Ohio, will combine with Diamond Alkali offices in the Penton Building; Central West Chemical Co., Redick Tower Bldg., Omaha, Neb., V. M. Jacobsen, district manager; Buckeye Soda Products Co., 38 Main St., Cincinnati, Ohio, L. W. Wahl, district manager.

FAIRBANKS, MORSE & CO. Service Men Remembered—Col. Robert H. Morse, president of Fairbanks Morse addresses gift packages to employees of the company now in the armed forces of the United States, as R. H. Morse, Jr., general sales manager, assists him. Both are veterans of the last war.

Glyco Products Co., Brooklyn, N. Y., has appointed Louis L. Shapiro as plant manager. For the last 14 years, he has served as chief chemist, director of the chemical and research departments, and assistant superintendent with the Wilson-

EDWARD BARTSCH, formerly of Chase National Bank of New York, who was elected executive vice president of Rayonier, Inc., at a meeting of the board of directors in San Francisco recently. Mr. Bartsch succeeds J. D. Zellerbach, who resigned but who will continue as a director and member of the executive committee.

NOW! ALL OUT TO WIN!

THEN —

New and ever increasing demands will be urgent for clothing of all kinds. Your machinery, tired and worn with heavy war-work, will need replacing or renovating.

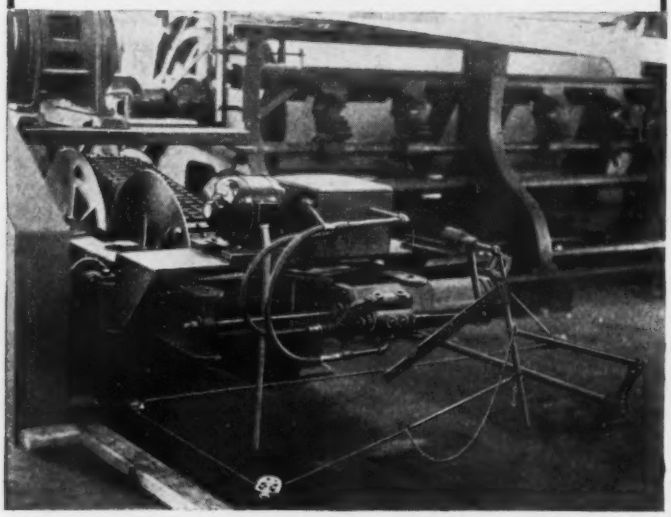
We offer our services as makers of machinery for the production of Worsted Yarns on both the English and Continental Systems. Long experience and high specialization will enable us to put your plant in order with minimum delay.

PRINCE-SMITH & STELLS LTD.

WORSTED MACHINERY MANUFACTURERS

KEIGHLEY (Yorkshire) ENGLAND

BEAMER OUTPUT *Doubled*

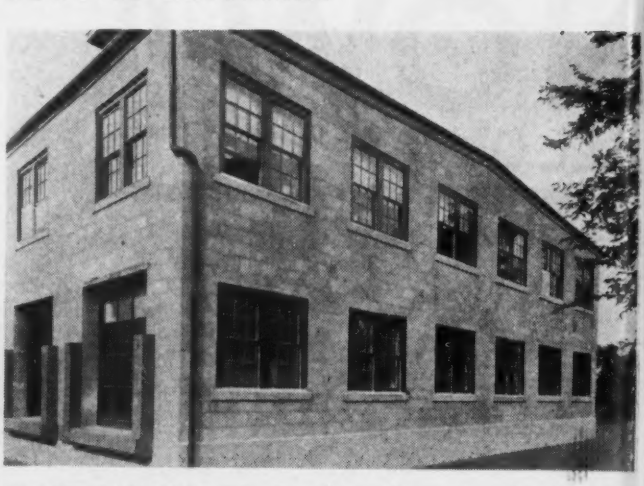


The heavy spindle-driven beamer shown above is driven through a hydraulically controlled REEVES Variable Speed Transmission, which automatically maintains the yarn speed as the beam diameter builds up. A manually operated foot pedal connected to control lever permits operator to bring beamer to slow speed for stopping or starting, or for piecing-up ends, inserting cut marks, etc. This combination of automatically maintained yarn speed and easy adjustment of speed at any time has resulted in approximately doubling output of beamer; also eliminates overtime previously required. REEVES Variable Speed Drives are standard equipment on many different types and makes of textile machines, and one of the three basic REEVES units, shown below, can be economically applied to any driven machine in service. Write for Catalog-Manual WG-419.

REEVES PULLEY COMPANY, COLUMBUS, INDIANA

ACCURATE VARIABLE *Reeves* **SPEED CONTROL**

Left to right: TRANSMISSION provides infinite speed adjustability over wide range, 2:1 to 16:1 inclusive; modern, compact, open and enclosed designs . . . VARI-SPEED Motor Pulley, simple, direct drive for requirements from fractional to 15 H.P.; 3:1 range . . . MOTODRIVE combines motor, speed varying mechanism and reduction gears.



ALROSE CHEMICAL CO., Providence, R. I.—Recently completed addition which houses a complete and modern research laboratory devoted to the creation and perfection of new synthetic chemicals for the textile industry.

Martin Division of Wilson & Co.

Carrier Corp., Syracuse, N. Y., has elected Heman Greenwood, for the last six years vice president of United States Steel Export Co., as vice president of Carrier in charge of its International Division. Mr. Greenwood has resigned as an officer of U. S. Steel Export and assumed his new duties on Oct. 1. He has devoted his entire business career to the field of foreign trade and is an authority on Latin America. At one time he was vice-president of International General Electric.

Atlantic Chemical Co., Centredale, R. I., has appointed John Bonino as textile finishing technician. Mr. Bonino has been for more than 40 years in the textile industry, and for the last eleven years he was superintendent of finishing at Gaede Dyeing Co., Paterson, N. J.

Hart Products Corp., New York, has added to its technical staff William A. Green, who was formerly in charge of research and development for Sayles Finishing Plants, Saylesville, R. I., and superintendent of Glenlyon Print Works Division. He will work with textile manufacturers and processors in the field of permanent finishes and pigment colors.

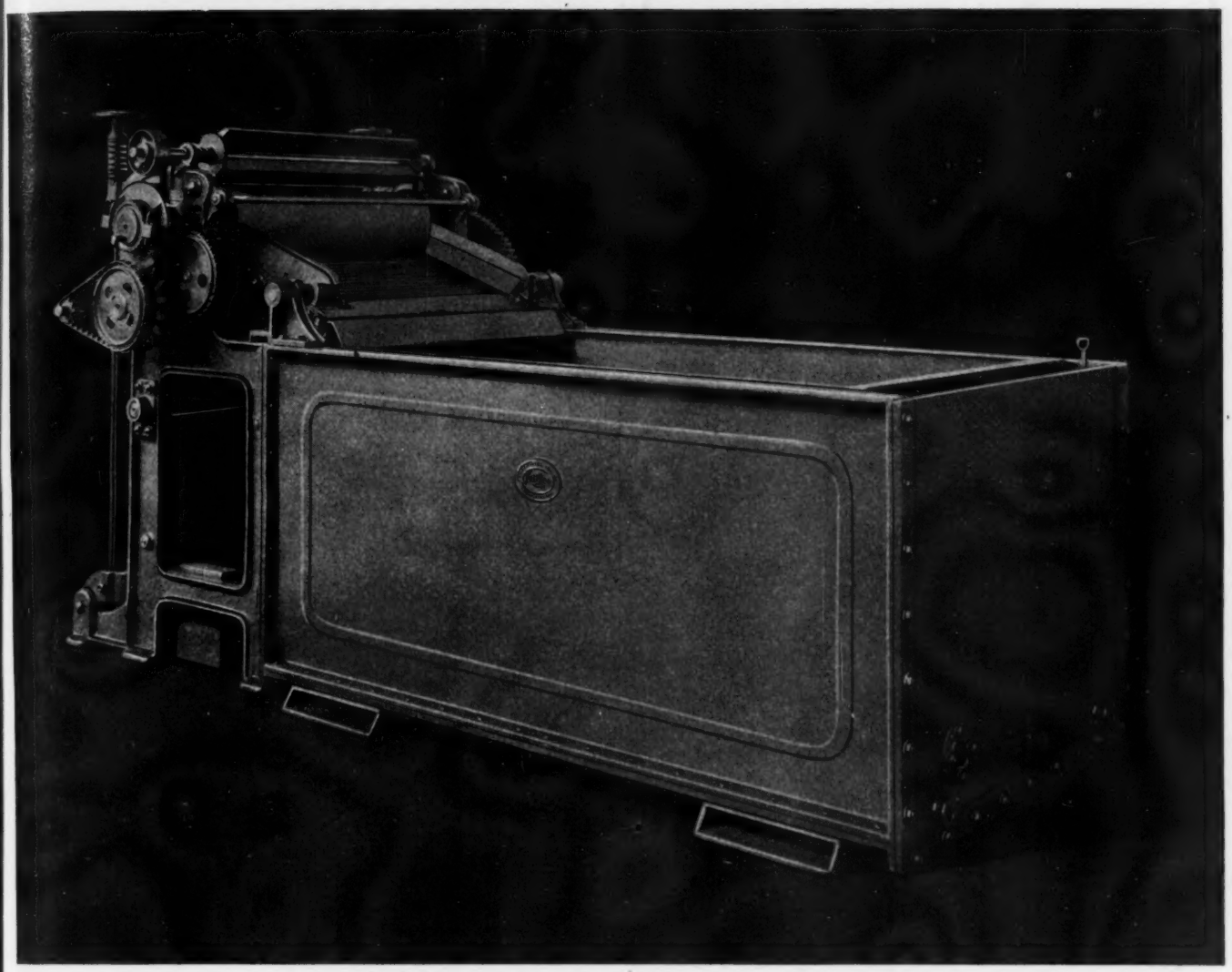
E. I. du Pont de Nemours & Co., Wilmington, Del.—Lewis S. Munson, who, as production superintendent and later plant manager of the Du Pont Dye Works, played an important part in building the great American dye industry, retired Oct. 1 at the age of 70. His first 23 years with the company were spent at the plant at Deepwater, N. J. During the last two years he has been at the company headquarters in Wilmington.

National Starch Products, Inc.'s executive office and research laboratories, which for the last 18 years have been located in the company's 6-story building at 820 Greenwich St., New York, will move to new and more spacious quarters at 270 Madison Ave. about Nov. 15. Shipments to eastern customers will continue to be made from National's Plant No. 1 at Dunellen, N. J. Other plants are located at Chicago, Indianapolis, and San Francisco.

Burkart-Schier Chemical Co., Chattanooga, Tenn., has added Donald H. Gunther to its laboratory staff to assist in the research and development program of textile chemicals and wet-processing agents. His initial assignment will be in the field of permanent finishes for textiles. Mr. Gunther was recently with the research department of Celanese Corp. of America, and previously with Avondale Mills and Columbia Mills.

Armstrong Cork Co., Lancaster, Pa., has elected Kenneth O. Bates, already a vice president of the company, to the board of directors, succeeding H. P. Smith, Jr., who resigned because of ill health.

Brown Instrument Co., Philadelphia — Richard P. Brown, chairman of the board of Brown Instrument Co., and vice-president of Minneapolis-Honeywell Regulator Co., has been named deputy-director of



THE PRACTICAL MACHINE FOR INDIGO DYEING WOOL STOCK

THE Hunter Indigo Dyeing Machine, when used in continuous range with Hunter Automatic Feeding, Rinsing, Extracting and Drying Equipment, affords a straight line continuous production not available with other methods.

This Hunter machine consists primarily of a tank, a basket of corrosion-resistant perforated sheet metal for holding the wool, and a pair of squeeze rolls. The kettle is heated with live steam by a modern arrangement.

The operation is simple: The basket is filled with wool, submerged in the vat and allowed to stand the necessary time. The basket is then raised by means of either an air or an electric hoist, and the wool is passed through the squeeze rolls and delivered into a proper receptacle where it is allowed to oxidize.

Wool dyed by this method is completely penetrated by the dye liquor. Even and uniform shades are produced, free from crocking or smutting. Furthermore, the stock is left in perfect condition, retaining all its softness and pliability. The Hunter Indigo Dyeing Machine handles the stock easily, and only one man's operation is required.

These Indigo Dye Machines are available to take charges from 100 to 250 pounds, and are in use in many mills now operating on Navy contracts.

FOR COMPLETE DETAILS, WRITE

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS
FOUNDED 1847

Another

G-E WATCH DOG*

for 100-watt lamps

For 100-watt Lamps

For 40-watt Lamps

For many months G-E Watch Dog Starters have been providing efficient and economical protection for 40-watt fluorescent lamps all over the Nation. Because these precision starters have been accepted so enthusiastically by busy war plants, we are now offering the new FS-100 Watch Dog for 100-watt lamp users. The FS-100 is a four-contact glow-switch type with the same outstanding qualities as featured in the FS-40.

The new Watch Dog, like the FS-40, is a precision lamp starter and dead lamp stopper that eliminates annoying flickering and blinking automatically. It reduces lighting maintenance time considerably because dead lamps may be replaced immediately without removing the starter from the fixture. The Watch Dog is reset to start a new lamp by merely pressing the colored button . . . it's as simple as that.

You can obtain additional information about G-E Fluorescent Accessories by requesting our new catalog. It's yours for the asking. Just write to Section G-1133-109, Appliance and Merchandise Dept., General Electric Company, Bridgeport, Conn.

*Reg. U.S. Pat. Off.

GENERAL ELECTRIC

NEWS OF SUPPLIERS

WPB, Third Region. For the last 18 months Mr. Brown had been serving as regional consultant to the Defense Plant Corp., subsidiary to RFC.

Goodyear Tire & Rubber Co., Akron, Ohio, has brought its synthetic rubber construction program to about 85% completion. The plant's total capacity is 210,000 tons yearly of GR-S type synthetic rubber, which is nearly a third of the entire Government program. This is the type of rubber to be used for automobile tires and similar purposes.

Nuodex Products Co., Inc., Elizabeth, N. J., has appointed A. E. Bartlett as director of sales service. He resigned as chief chemist of the General Industrial Finishes Division of General Printing Ink Corp. to join Nuodex.

Westinghouse Electric & Mfg. Co. has appointed Thomas U. Phillips, vice president of the company, to head of the company's Pittsburgh Divisions. Mr. Phillips, who started with Westinghouse 28 years ago as a tool maker, succeeded A. C. Streamer who was named assistant to the president with headquarters in Pittsburgh.

General Electric Co., Schenectady, N. Y., has appointed Howard W. Bennett as manager of the specialty division of its Electronics Department. In this capacity Mr. Bennett will be responsible for the engineering, manufacturing, and sales operations of that division. General Electric has transferred C. K. Mead, sales manager of Resin and Insulation Materials Division to the Schenectady office of the company.

Thermoid Co., Trenton, N. J., has appointed Clarence B. Moore as head of the Rubber Division of Thermoid Research Laboratories, and Harry Bourne as methods engineer in charge of hose production for the Rubber Division. Joseph Harrison, Thermoid's chief rubber chemist, will continue in his post, as will the rest of the rubber research staff. Mr. Moore was formerly with Goodyear Tire & Rubber Co. and B. F. Goodrich Co.

Cutler-Hammer, Inc., Milwaukee, Wis., has appointed W. E. Addicks as manager of the New York district office.

W. E. ADDICKS, now manager of the New York district office of Cutler-Hammer, Inc.

Mr. Addicks entered the employ of Cutler-Hammer as an engineer immediately after graduation from Cornell University in 1914. Prior to his new appointment Mr. Addicks was in charge of the Boston sales office.

Hercules Powder Co., Wilmington, Del., has appointed G. Fred Hogg as sales director of its Naval Stores Department. Mr. Hogg was formerly manager of the Naval Stores Department office in Chicago.

Devoe & Raynolds Co., Inc., New York, has opened a fourth plant for the manufacture of "Dehydray," a completely dry paint. Demand for this dehydrated paint has greatly exceeded the company's original expectations.

Jenkins Bros., New York, has appointed Alfred M. Street as publicity manager to direct the advertising of all the company's products. He was formerly assistant publicity manager. In his new position he succeeds Charles C. Chamberlain, who has been made general sales manager.

Burrell Technical Supply Co., Pittsburgh, Pa., has elected the following officers: G. A. Burrell, president; G. H. Burrell, vice-president and general manager; C. S. Steenson, secretary and treasurer. At the same time E. Dollhopf was named manager of purchases and R. M. Arnold, manager of sales.

Cochrane Steam Specialty Co., Boston, Mass., has added Joseph B. Grinnell to its organization. Mr. Grinnell is a former associate of Whitty Mfg. Co., manufacturers of domestic and industrial stokers.

TEXTILE BANKING COMPANY

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

Dyes Right!

when you bleach with

SOLVAY

TRADE MARK REG. U. S. PAT. OFF.

LIQUID CHLORINE

Fabrics answer the call to colors. From olive drab to slate gray, colors rate a salute for uniformity and color fastness.

As an effective and versatile bleaching agent and water conditioner, Solvay Liquid Chlorine rates a salute, too! 62 years of dependable service to fabrics is your assurance of controlled quality, purity, and uniformity.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK 6, N. Y.

NEWS ABOUT MEN

William D. Anderson, chairman of the board and former president of Bibb Mfg. Co., Macon, Ga., was again named president to succeed Scott Russell whose resignation to accept a government post was noted last month.

A. J. Rosenstein, West Hartford, Conn., has resigned as president of Myrtle Knitting Mills, Unionville, to become field supervisor for the Office of Foreign Relief and Rehabilitation Operations. Mr. Rosenstein is also president of the Hartford Spinning Co. The management of both companies will be taken care of by **Nathan Rosenstein,** a brother.

F. W. Symmes, of Greenville, S. C., and **H. J. Blackford,** of Spartanburg, S. C., are newly elected members of the board of directors of Santee Mills, Orangeburg, S. C.

Wallace P. Cohoe was inducted as president of the Society of Chemical Engineers at a meeting held last month in New York. Mr. Cohoe is well-known in the textile industry as a consultant.

Edward F. Vonderahe has been named manager of the Johnstown, N. Y., branch of the Gloversville (N. Y.) Knitting Co.

E. C. Fox was elected president and managing director of Canadian Cottons, Ltd., recently. He was formerly chairman of the board and succeeds **R. G. Tolmie,** who is retiring because of ill-health, although remaining as a director. **W. V. Boyd,** a director and general manager, was elected vice-president, and **Macmillan Boyd,** director of research, was elected a director.

Tracy A. Adams, who for over ten years was vice-president and general manager of the Arnold Print Works, North Adams, Mass., and more recently general manager of the Lawrence Print Works, a division of the Aspinook Corp., has joined the Barnes Textile Associates, Inc., Boston, Mass. He will establish a department in the Barnes organization which would serve rayon and cotton dyeing and finishing plants in the same capacity as the present organization serves cotton, woolen and rayon cloth mills in manufacturing activities. Mr. Adams is a graduate of the Lowell Textile Institute.

ROBERT W. PHILIP, of Atlanta, who has resigned as editor of *Cotton* and vice-president of the W. R. C. Smith Publishing Co. to become president and executive director of Callaway Institute, Inc., of LaGrange, Ga. He will assume his new duties on or before Jan. 1. Mr. Philip succeeds, as president of the Institute, Fuller E. Callaway, Jr., and, as executive director, Perrin N. Collier, who has resigned to devote his full time to the position of vice-president and general manager of the newly-formed USEO division of Callaway Mills. Mr. Philip has been connected with *Cotton* since 1919, and has been its editor-in-chief for the last 15 years. He has been secretary-treasurer of the Textile Operating Executives of Georgia since its formation in 1922. Jesse W. Stribling has succeeded Mr. Philip as editor of *Cotton*. Mr. Stribling has been field engineer of Universal Winding Co. of Providence since 1925 with headquarters in Atlanta.

George C. Lincoln, vice-president and agent of Raylaine Worsteds, Inc., Manchester, N. H., has been elected president of New Hampshire Mfrs. Assn.

Dr. Lester S. Sinness, for eight years engaged in research activities in the technical division of the Rayon Department of E. I. duPont de Nemours & Co., Wilmington, Del., has been named director of the company's viscose rayon research.

R. L. Wenger, of Bigelow-Sanford Carpet Co., has been transferred from the Boston, Mass., sales office to Chicago.

William G. Marks, Durham, N. C., director of safety and training at Erwin Cotton Mills Co., is teaching a course in industrial safety engineering at Duke University.

Andy Christensen has resigned from the Virginia State

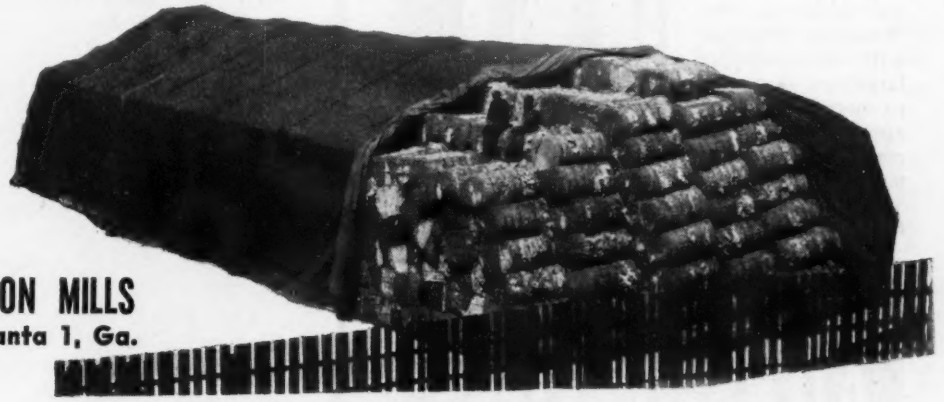
HAVE YOU A COTTON STORAGE PROBLEM?
FULTON QUALITY TARPAULINS *are the Answer*

The 1943 cotton crop has put a heavy load on the limited, unused storage space in compresses, commercial warehouses and mill warehouses throughout the South.

Are your storage facilities inadequate? If so, store your baled cotton outside and protect it with "Fulton Quality" Tarpaulins. Many mills have used these covers satisfactorily for years. Our manufacturing facilities are at your disposal. If you will advise us the number of bales that you wish to store and the available space, we will be glad to design and quote you on economical, protective covering for your needs.

Established in 1870

Manufactured canvas articles of all kinds



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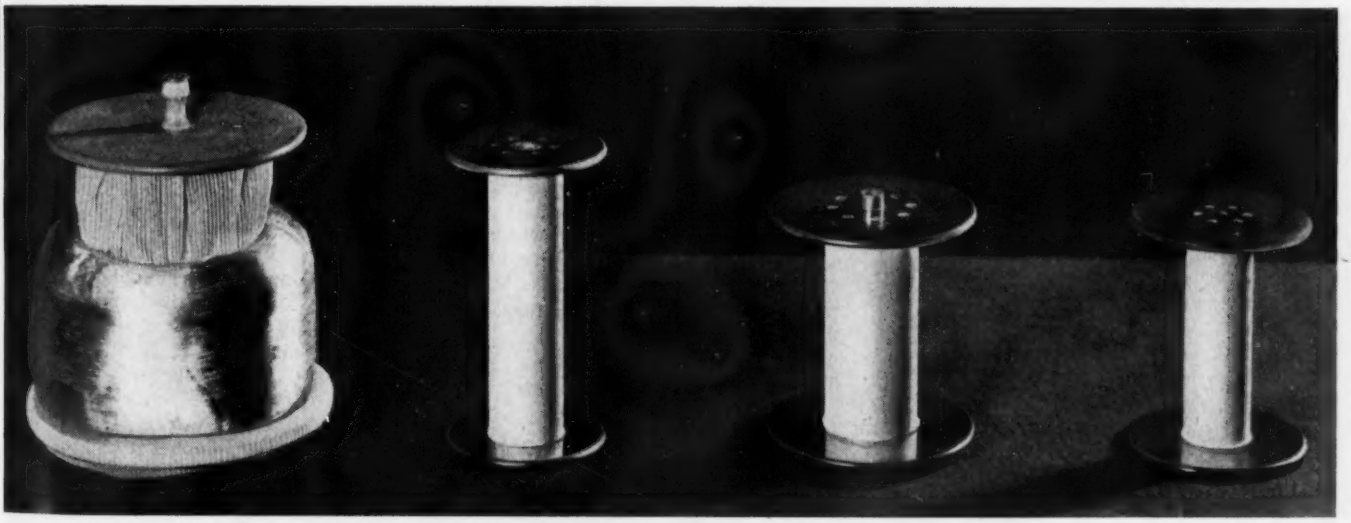
P. O. Box 1726 Atlanta 1, Ga.

Branch plants

DALLAS NEW ORLEANS NEW YORK ST. LOUIS MINNEAPOLIS KANSAS CITY, KANS.



From **CAKE...**

To **FINISHED YARN...**

on Freeland **PRODUCTS**

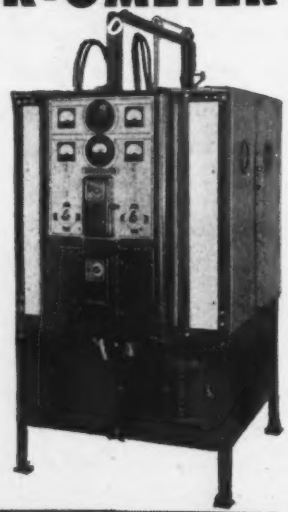
Freeland SPOOL and BOBBIN CORPORATION

Hazleton, Pennsylvania

Mill operators know what the ATLAS FADE-OMETER and LAUNDER-OMETER have done for the textile industry in predetermining the fastness to light and washing of textiles.

ATLAS WEATHER-OMETER

now has taken an equally important place in the industry for testing fabrics exposed to weathering under war conditions. The Weather-Ometer will accommodate large size specimens to meet the Federal specifications demanding accelerated tests.



ATLAS ELECTRIC DEVICES CO.
361 W. Superior St.
Chicago 10, Ill.

ATLAS-OMETERS
WEATHER-OMETER
LAUNDER-OMETER ★ FADE-OMETER

THE TERRELL CLEANING AND HANDLING SYSTEM

The improved TYPE K stripper; Automatic Bobbin Box Hoist and Conveyor Elevator—a modern, compact system for increasing the efficiency and lowering the cost of bobbin cleaning and handling.

The **Terrell Machine Co.,** *Inc.*
CHARLOTTE, N. C.

James F. Notman . . . . Needham, Mass.—N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J.—Penn., N. J. and N. Y.
W. J. Westaway Co., Ltd. . Hamilton and Montreal, Canada
Geo. Thomas & Co. . Manchester, England.—European Agt.

NEWS ABOUT MEN

Board of Education to accept the post of employment manager of Riverside & Dan River Cotton Mills of Danville, Va.

C. A. Peterman, southeastern representative of Iselin-Jefferson Co., has been assigned to cover the southwestern territory, in addition to his present assignment, out of the Atlanta office.

Ellis Leach is now connected with E. F. Timme & Son, New York. He was formerly with Sanford Mills and L. C. Chase & Co.

E. E. Ferguson, formerly with Arlington Mills of Lawrence, Mass., is now purchasing agent for Hathaway Mfg. Co., New Bedford, Mass.

William K. Caton has been placed in charge of personnel and employment at the Fulton, N. Y., mills of American Woolen Co.

Kay Dixon, treasurer of Trenton Cotton Mills, assistant treasurer of Dixon Mills, and president of National Bank of Commerce, all of Gastonia, N. C., has been elected chairman of the board of directors of the North Carolina Orthopaedic Hospital there.

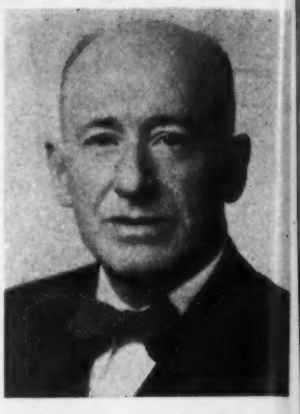
Patrick J. Kennedy, chairman of the New York Section of the American Association of Textile Chemists and Colorists, has appointed a membership committee under the chairmanship of **Thomas F. O'Brien,** vice-president and general manager of the R. W. Bates Piece Dye Works, Garnerville, N. Y.

R. W. Howison has been named eastern division sales manager of Bigelow Sanford Carpet Co., Thompsonville, Conn., and will supervise sales offices at New York, Philadelphia, Boston, Buffalo, Hartford, Atlanta and Pittsburgh.

Truman P. Handy, former general sales manager of Celanese Corp. of America, has been appointed chief consultant on rayons by OPA in the Consumer Goods Division.

James M. Bailey, plant superintendent of Judson Mills, Greenville, S. C., has been promoted to plant manager, and **J. C. Clark** has become plant superintendent. **C. W. Bendigo** has been named superintendent in charge of research, and **C. H. Lawton** and **F. J. Aiken** have been appointed assistant superintendents.

Jos. F. Chalmers, superintendent of Greenwood (S. C.) Cotton Mills was an attendant at the annual reunion of the North Sea Mine Force Association, at Hotel New Yorker Oct. 15 and 16. The group is composed of veterans of the last war. Other textile men present were: **Thos. A. Parker** of J. M. Parker Co., New Orleans, La.; **Edw. W. Coyle,** Merrimack Mfg. Co., New York; **Arthur Pertsch,** member New York Cotton Exchange.



WARD DELANEY, head of the new Institute of Textile Technology, spoke before the Nov. 3 meeting of the American Assn. of Textile Technologists in New York.

H. T. Gilbert, formerly with Exposition Cotton Mills, Atlanta, Ga., has become superintendent of Abbeville (S. C.) Cotton Mills, succeeding **Fred Garlington,** who resigned. Mr. Gilbert, widely known in Southern textile circles, assumed his new duties Nov. 1.

Frank D. Lockman, former superintendent of Monarch Mills, Lockhart, S. C., has assumed new duties as superintendent of Clinton (S. C.) Cotton Mills and Lydia Cotton Mills, also located at Clinton. **M. Sanders,** former overseer of spinning at Clinton Cotton Mills, has been promoted to assistant superintendent.

J. Lamar Moore, formerly superintendent of the Manchester, Ga., unit of Callaway Mills, has become superintendent of Buck Creek Cotton Mills, Siluria, Ala.

Fred Still has resigned his position as superintendent of Exposition Cotton Mills, Atlanta, Ga., and has accepted a similar position with Stonewall (Miss.) Cotton Mills.

W. N. McCann has become day overseer of carding and spinning at Strickland Cotton Mills, Valdosta, Ga., with **T. B. Parnell** being overseer of the same departments at night.

SHEDS WATER LIKE A DUCK'S BACK

thanks to COLACET

Franklin's WATER REPELLENT

If you're at all interested in making textiles not only water resistant, but practically impervious to spots, stains and perspiration, you'll want complete information about this outstanding Franklin product.

COLACET also *adds beauty* to textile articles of all kinds, from aprons and tablecloths to uniforms, and gives them the ability to withstand wrinkling and wilting.

Is it any wonder we're being deluged with requests for complete technical information? Send off yours today.

Colacet conforms to Quartermaster Corps Tentative Specifications P.Q.D. 115 b dated November 19, 1942.

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Makers of Rubber Gloss - - - - - - - - - - **PHILADELPHIA**

REDUCE YOUR MAINTENANCE COSTS

DURO-TEST LAMPS

FULLY BACKED BY DURO TEST ONE YEAR FREE REPLACEMENT GUARANTEE

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DURO TEST CORPORATION · NORTH BERGEN, NEW JERSEY

SINGEING • DRYING • CURING

with

INFRA-RED RADIANT HEAT GENERATORS

- RADIANT HEAT FOR THE TEXTILE INDUSTRY
  - . . . in low-cost, automatic, adjustable installations
  - . . . utilizing any flammable gas as fuel
  - . . . precision-built for maximum uniformity and speed.
- NOW APPLICABLE TO ALL DRYING AND FINISHING OPERATIONS
  - . . . controlled temperatures *plus* high turndown
  - . . . improved finish *plus* increased yardage
- SPECIAL UNITS FOR PALMERS—TENTERS—SINGERS—LOOP DRYERS—SLASHERS—THREAD DRYERS
- Request new descriptive circular T-12

INFRA-RED Division

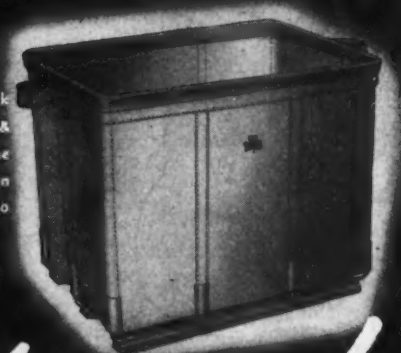
CARBOMATIC CORPORATION

Pioneers in Radiant Heat Burner Equipment, Gas or Electric

1775 Broadway, New York 19, N. Y.

Also H. W. Butterworth & Sons Co., Philadelphia, Pa.

"Busy Baskets"



On the Home Front, Shamrock Canvas Baskets, Hampers & Trucks are busier than ever these days. Their rugged construction is a source of satisfaction to users everywhere.

Shamrock

MEESE, INC. Madison, Ind.

KEEP ON BUYING WAR BONDS

NEWS ABOUT MEN

H. D. Learnard, formerly mechanical engineer with Pacific Mills, Lawrence, Mass., has been retained in a consulting capacity in Textile Printers plant in West Warren, Mass.

Fred Jackson has resigned his position as boss dyer with Crown Dye & Finishing Co., Philadelphia, to accept a position with Imperial Dyeing & Finishing, Inc., as superintendent.

David Dott, Jr., is now superintendent of the cotton and rayon division, Lorraine Mfg. Co., Pawtucket, R. I. He has been with the company 12 years. He succeeds **Robert J. Robertson,** who has joined Duplan Corp.

Clifford O. Morgan has become superintendent of the Madora and Adrian units of American Yarn & Processing Co., Mount Holly, N. C. He formerly held a similar position with American Thread Co., Dalton, Ga.

Henry B. Miller, formerly superintendent of American Spinning Co., Greenville, S.C., has become superintendent of Lynchburg (Va.) plant of Consolidated Textile Corp. He succeeds **Culver Batson,** who resigned.

B. H. Bloch, head of throwing department of the Greensboro, N. C. plant of the Burlington Mills Corp., is now teaching fabric testing and analysis two nights a week to members of the class established recently at Woman's College, Greensboro.

W. C. Johnson, formerly overseer of spinning and preparation at Monaghan plant of Victor-Monaghan Co., Greenville, S. C., has accepted the position of assistant superintendent of Florence Mills, American Spinning Division, Greenville, S. C.

J. M. Reynolds has accepted the position of superintendent of carding and spinning at Randleman (N. C.) Mills.

Jack Rymer has become superintendent of Santee Mills, Orangeburg, S. C. He formerly held a similar position with the No. 4 unit of Chadwick-Hoskins Co., Charlotte, N. C.

James A. Ellis, formerly second-hand of spinning, spooling and warping at the Williamson, S. C., plant of Gossett Mills, is now overseer of spinning, spooling and warping at Martinsville (Va.) Cotton Mill Co., Inc.

J. F. Tims has been appointed superintendent of spinning and preparation at Victor-Monaghan Co., Monaghan plant, Greenville, S. C., and has been succeeded as assistant in these departments by **Fred M. McDonald,** formerly of Roanoke Rapids, N. C.

J. F. Plexico, formerly associated with United States Rubber Co., in North Carolina, Tennessee and Iowa, has become superintendent of the new unit of the American Thread Co., Tallapoosa, Ga.

L. S. Duval, formerly of Gastonia, N. C., has become superintendent of the carding department of Abbeville (S.C.) Cotton Mills, succeeding **M. V. Freeman.**

J. L. Beard, formerly connected with a unit of Kendall Co., Newberry, S. C., has accepted the position of superintendent of the Haynes unit of Cliffside Mills, Avondale, N. C., succeeding **H. L. Rollins.**

W. F. Trogdon, formerly of Worthville, N. C., where he was associated with the Leward Cotton Mills, has become general superintendent of carding and spinning at Consolidated Textile Corp., Lynchburg, Va.

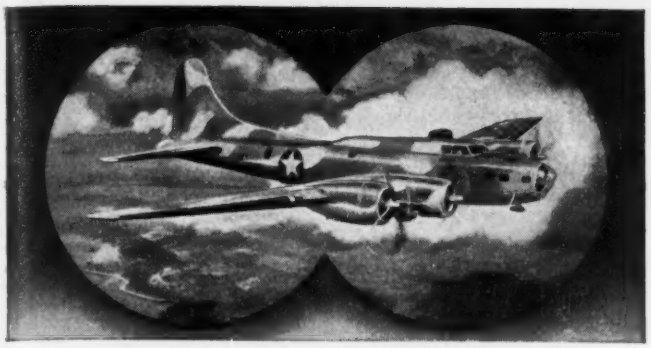
H. I. Harris has accepted the position of superintendent of Greenville (N. C.) Spinners, Inc., succeeding **J. T. Honeycutt,** who has resigned.

E. D. Horton has become superintendent of carding at Judson Mills, Greenville, S. C. He was formerly head of No. 1 and No. 2 picker room and 1-A and 1-B carding departments at Riverside & Dan River Cotton Mills, Danville, Va.

Louie M. Saxon has become assistant superintendent of Ingram Spinning Mills, Nashville, Tenn., resigning his position as general superintendent of the National Textile Mills, Monrovia, Calif. He was previously connected with Bama Cotton Mills, Enterprise, Ala.; Jordan Mills, Columbus, Ga., and Argonaut Cotton Co., Los Angeles, Calif.

M. W. Carter, formerly with Santee Mills, Bamberg, S. C., has become assistant superintendent of Mathews Cotton Mill, Greenwood, S. C.

John W. Rowell, superintendent of carding, spinning, spooling and warping departments of A. D. Juilliard & Co., Rome, Ga., unit, has resigned



Vital War Work...

is keeping all HOFMANN plants occupied fulfilling Uncle Sam's requirements. Then, too, we are striving to fill the needs of our customers with all the speed and dispatch possible. We appreciate the fine spirit of co-operation that the trade has shown and look forward to the days of peace and 100 per cent service!

ALFRED HOFMANN PLANTS

WEST NEW YORK, N. J.

Manufacturers of Tricot Full Fashioned Hosiery and Other Textile Machinery and Attachments. Supplies for Full Fashioned Hosiery Machinery.

Southern Representative:

SOUTHERN HOSIERY MACHINE & SERVICE CO., Valdese, N. C.

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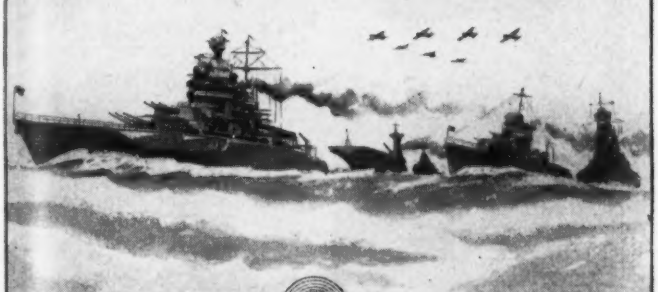
OF FINISHING EQUIPMENT

Fulling Mills • Washers — Batch and Continuous • Derby Dry Cleaners • Piece Dye Kettles • Stock Dye Kettles • Carbonizing Ranges • Dye Becks • Rope Soapers • Soaping Machines • Pusher Mills • Soap Distributing Systems • Top Dyeing Machines • Progressive Jigs • Yarn Steamers



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Foot of Suffolk Street ··· Lowell, Mass.

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NEW YORK

Check Credits

Cash Sales

Absorb Credit Losses

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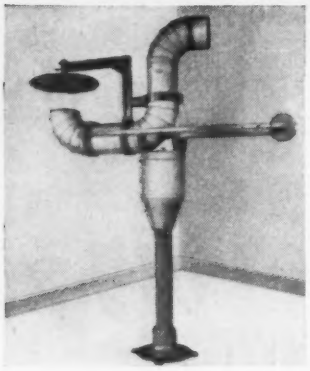

Truslow Blender (patented)

★

SAVE MANPOWER

To keep production moving at top speed with minimum man-power, equip your picker room with Truslow Blenders. Manual blending operations can now be performed mechanically with very little labor.

The Truslow provides really thorough blending of natural and synthetic fibres. The stock is blown through piping to the Blender. It then passes through a rotating arm and is blown up against the vanes of the canopy—making it revolve and distribute the stock in the form of a heavy snowstorm.

Ask us more about it!

★ ★ ★ ★ **Curtis & Marble** MACHINE COMPANY WORCESTER, MASSACHUSETTS. ★ ★ ★ ★

STAINPRUF PROCESS

"TEXTICIDE"

MILDEW AND ROT PROOFING

A stable, highly durable finish for application in water or solvents—directly in the dye bath, or in oil emulsion baths. When applied in the dye bath it helps to set the colors.
Comes in emulsion form also for special uses.
Stable in storage. Absolutely uniform results assured.
Meets efficiency and compositions requirements of applicable Government specifications. Approved.
Non-toxic under recommended conditions of use.
Water repellents of all types. Water and solvent soluble.

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ATLANTIC STAINPRUF CO.
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Sold by distributors throughout United States, Canada, Central and South America.

Persimmon Shuttle perfected by WATSON-Williams as the answer to the dogwood shortage. Impregnated for long, satisfactory service. Tested under all conditions, on different fabrics, different looms.

WATSON-WILLIAMS
MANUFACTURING CO.
The Shuttle People
Millbury, Mass.

SOUTHERN OFFICE: W. F. Daboll, 810 Woodside Bldg., Greenville, S. C. NORTHERN REPRESENTATIVE: G. C. Burbank, 32 Beaconsfield Rd., Worcester, Mass.

and has become head of the carding department of Avondale Mills, Sycamore, Ala. **J. J. White,** who has been on duty at night at the Juilliard plant, has been promoted to succeed Mr. Rowell.

C. C. Roberts, formerly with Pelzer (S. C.) Mills, has accepted the position of superintendent of the carding department of Exposition Cotton Mills Co., Atlanta, Ga.

J. J. Norton, Jr., has relinquished his duties as superintendent of Goodyear Clearwater Mills, No. 1, Cedartown, Ga., to become superintendent of Lockhart, S. C., unit of Monarch Mills.

N. L. Whitten, superintendent of Thomaston (Ga.) Cotton Mills for the last 12 years, retired on July 1, and has been succeeded by **Robert Adams.**

Textile Men in Armed Services

T. P. Roberts, manager of Adelaide Mills, Anniston, Ala., has joined the Navy and is a lieutenant (j.g.) assigned to the Caribbean in charge of a gun crew. He is the son of **T. Scott Roberts,** president of these mills.

Oliver D. Landis, lieutenant, U.S.N.R., Charlotte, N.C., for many years sales representative for Graton & Knight Co., in the Carolinas, has been transferred to the U. S. Naval Gunnery School at Hollywood, Fla., as instructor, after several months of duty in the South Pacific war theater.

Fred S. Strauss, president of Harte & Co., Inc., New York, joined the army on Oct. 14, at Fort Dix, N. J.

Milton D. Crawley, head of the carding and spinning departments of Granite Falls (N.C.) Mfg. Co., before entering the armed services, has been sent to the Desert Training Center, Calif., as a sergeant.

William F. Macia, of A. M. Tenney Associates, New York, has been commissioned lieutenant and assigned to Naval Clothing Depot, Brooklyn, N. Y. He will have charge of physical and chemical laboratory methods. He is on leave of absence from the Tenney firm.

U. S. Army News Photo

CAPT. SAMUEL M. LITTLEJOHN, of Clemson, S. C., seated, a veteran of the European theater of operations, now attached temporarily to the Reclamation School of Camp Lee's Quartermaster Replacement Training Center, discusses field training plans with Lt. Westley S. Lewison, instructor.

DWIGHT M. WILHELM, formerly executive secretary of the Alabama Cotton Manufacturer's Association, who has been promoted from major to lieutenant-colonel. He is executive officer at Courtland (Ala.) Air Field.

Raymond Reiner, of Robert Reiner, Inc., Weehawken, N. J., and son of the head of the firm, has been promoted to rank of lieutenant (j.g.) in the Navy. He is serving overseas.

William A. Stutts, of the advertising department of American Viscose Corp., New York, has been inducted into the Marine Corps. He has been with the company since June, 1941, in the capacity of assistant to **Charles E. Rice, Jr.,** advertising manager. Mr. Stutts is on leave of absence.

Henry W. Hinton, on leave from Judson Mills, Greenville, S. C., now with the Coast Artillery stationed at Governors Island, N. Y., has been promoted to the rank of captain.

COTTON — *King of War Fibers*

Cotton's amazing versatility makes it the king of fibers in its important job of helping win the war. A second series of cartoons, prepared by the U. S. Army Quartermaster Corps, continues the story of Cotton in the war. These cartoons will be released to the nation's newspapers, and will be used in other ways designed to insure nationwide coverage.

National Cotton Council of America — Cotton-Textile Institute

ACTUAL SIZE
EMPIRE
textile
mill crayons
THE PERFECT MARKER
FOR ALL TEXTILE MILLS
Especially made for marking the roving in wool, cotton, silk, rayon, and all textile mills.
Supplied in 18 clear, distinguishable colors.
Write to Dept. T-1 for a FREE chart showing these colors.
• Reg. U. S. Pat. Off.
THE AMERICAN CRAYON COMPANY
1706 HAYES AVENUE SANDUSKY, OHIO
NEW YORK SAN FRANCISCO DALLAS

question

Are Red Oil allocations under FDO 53 affecting your soap requirements?

answer

Do something about it... Use Tall Oil.

Tall Oil is being used more and more in textile soaps because of existing shortages of Red Oil.

Tall Oil is a domestic product derived from wood pulp in sufficient tonnages to assist immeasurably in extending Red Oil supplies. FDO 53 has now been in effect almost six months and because of the large demands for Red Oil in essential war work the remaining reduced supply is being strictly allocated. It is not intended that Tall Oil should entirely replace Red Oil in your soap formulas but it is suggested that it be used to extend Red Oil and thus permit Red Oil to continue its important work in the production of essential war products. Textile Manufacturers making their own soaps and Soapmakers specializing in textile soaps should investigate the possibilities offered by Tall Oil. The range of analyses of both Liqro (crude) and Indusoil (refined) Tall Oils is as follows:

PHYSICAL DATA	Liqro	Indusoil
Specific Gravity 60°F/60°F	0.97-0.99	0.96-0.98
Pour point, not over, °F	45	—
Viscosity — Saybolt Universal at 210 °F —Seconds	95-120	50-70
Flash Point, °F	350-370	350-330
Fire Point, °F	410-430	410-430
Color	Brown	
Lovibond using half column— Yellow—not more than		70
Red — not more than		40
Moisture—less than, %	0.4	0.1

CHEMICAL DATA	Liqro	Indusoil
Acid Number	160-170	170-180
Saponification Number	165-175	170-185
Rosin Acids Number	80-90	63-71
Iodine Number (WIJS)	140-150	—
Ash—Less than, %	0.4	0.1

ANALYSIS		
Fatty Acids, %	45-50	55-60
Rosin Acids, % Calc. as Abietic	42-48	34-38
Sterols, Higher Alcohols, etc. %	6-9	6-10

Samples and Literature Upon Request

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP & PAPER CO.

230 Park Avenue
New York 17, N. Y.

35 E. Wacker Drive
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FIDELITY 9-SKEIN REELER

Single- and Double-End Types. Collapsible arms on reel, automatic yardage control and improved tension device. Reduced doffing cycle with Twin-Unit System.

Write for Bulletin

FIDELITY MACHINE COMPANY
3908-18 FRANKFORD AVE., PHILADELPHIA, PA.

TEXTILE INDUSTRY RESEARCH
INCORPORATED
11 WEST 42ND STREET NEW YORK. N. Y.
CONSULTANTS ON TEXTILE MANUFACTURING
AND DEVELOPING
SPECIALIZING IN
OPERATING METHODS. WORKING CONDITIONS.
MAINTENANCE. WASTE CONTROL.
NEW FIBRES AND PROCESSES

Simplified DESIGN
Flexible POWER
Better EVAPORATION
More sensitive CONTROL

SOUTHWORTH HUMIDIFIER

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

NOTE
This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

Obituary

William T. Cole, 82, retired president and director of the Fabric Fire Hose Co., Sandy Hook, Conn., died Oct. 9. Early in life he manufactured silk under the name of Cole & Knapp. In 1890 he retired from the company and joined the Fabric Fire Hose Co., then in New York.

Robert L. Draper, 73, president of Draper Brothers Co., Boston, Mass., died there on Nov. 1. He had been associated with the business for over half a century and president since 1932.

Harold Bennett, 70, owner of the Melrose (Mass.) Chemical Co., died last month. He established his business in 1913.

Major Charles T. Griffith, U. S. Army (retired), 61, manager of the Hosiery Dryer Division of Proctor & Schwartz, Inc., Philadelphia, died Sept. 28, following an illness of several weeks. He had been with the firm since 1919.

I. B. Covington, 65, who took part in establishing the Wade Mfg. Co., Wadesboro, N. C., in 1924 and was its superintendent and general manager until his retirement a year ago, died last month.

Sir James Morton, 76, chairman of Morton Sundour Fabrics, Ltd., Carlisle, England, died Aug. 22. He was chairman of Standfast Dyers & Printers, Ltd., of Lancaster, and a founder of Scottish Dyes, Ltd., now part of Imperial Chemical Industries, of which he was a director. He was a recipient of the Faraday Medal for development of anthracene dyestuffs as applied to silk and wool.

Charles L. Gagnebin, 78, vice-president of General Dyestuff Co., Boston, Mass., until his retirement in 1926, died recently at Brookline, Mass. He was a former chairman of the New England section of the American Chemical Society and past-president of the Drysalters Club.

John M. Bruner, for 30 years connected with Oconee Mills, Inc., Westminster, S. C., and for a number of years treasurer and general manager, died recently.

Edmund W. Converse, 84, a cotton broker in Boston for many years, died at New London, N. H., Oct. 14.

Roddy Allen Field, 75, former vice-president and director of Newnan (Ga.) Cotton Mills, died Sept. 21. Mr. Field joined the Newnan Cotton Mills as superintendent in 1901. He retired five years ago.

A. C. Duncan, 66, manager of Hercules Powder Co.'s Paper Makers Chemical office in Portland, Ore., died Sept. 26 at Portland.

Morris Hecht, formerly in charge of the efficiency department of Bibb Mfg. Co., Columbus, Ga., more recently major in the U. S. Army Air Corps., being commanding officer of a pursuit plane squadron, was killed in action Aug. 19, in the South Pacific area.

Edmund Winchester Converse, Jr., 85, Boston, Mass., a retired wool and cotton broker, died Oct. 14 at his home in New London, N. H.

Alfred Schneebeli, 68, former general manager of the American interests of Stehli & Co., died in Lancaster, Pa.

O. G. McCarter, 48, manager of Sieverville (Tenn.) branch of Holston Hosiery Mfg. Co., is dead.

Edward P. Norton, 55, superintendent of the mechanical department of Alice Mill, Easley, S. C., died recently.

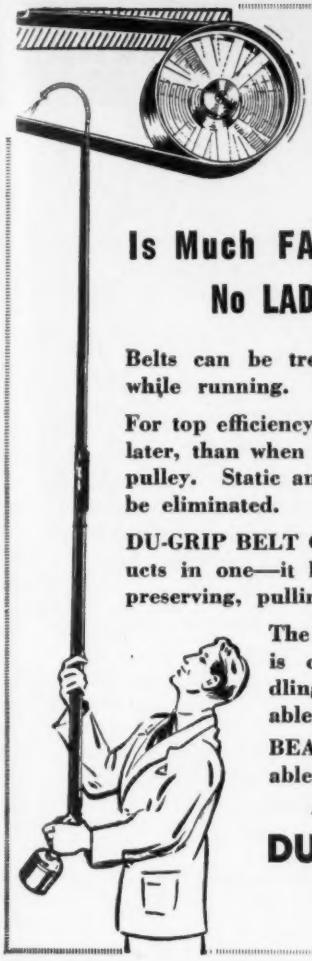
Robert Greth, 72, foreman at Leinbach Woolen Mills, Reading, Pa., for many years, died Oct. 14.

J. J. Hudson, 79, for 20 years floor foreman at Chatham Mfg. Co., Winston-Salem, N. C., until his retirement six years ago, died recently.

Robert J. Scowcroft, 69, former superintendent of weaving at the Atlantic Mill, Providence, R. I., where he had been employed for 52 years before his retirement in 1936, died recently at Providence.

Arthur A. Bills, an official in the Bleachery Division of Nashua (N. H.) Mfg. Co., died Sept. 1.

E. A. Hill, general superintendent of Lydia Cotton Mills and Clinton Cotton Mills, both at Clinton, S. C., died in a Baltimore, Md., hospital Sept. 15.



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LONGSHOT WAY With DU-GRIP

Is Much FASTER and SAFER

No LADDER to MOVE

Belts can be treated when they need it, while running. That's IMPORTANT!

For top efficiency, treat belts before, or not later, than when a shiny streak appears on pulley. Static and costly belt cleaning can be eliminated.

DU-GRIP BELT OIL is actually three products in one—it has the highest degree of preserving, pulling and cleaning qualities.

The LONGSHOT BELT OILER is collapsible for easy handling. Special lengths available. Standard—8 feet.

BEARING OILERS also available from 1 to 10 feet long.

Literature on request.

DU-GRIP MFG. CO.
3142 Bellevue Road
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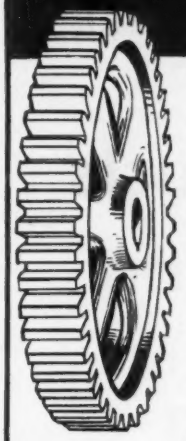
Gears

PRECISION CUT

Any Material-Any Quantity



Our large modern plant is ready to serve you whether you need a single gear or a production run. We have the facilities and the equipment for fast, accurate, low cost production. We also produce generated tooth racks in any desired length, from 4 to 16 diametral pitch; 14½ or 20° teeth. Precision Surface Grinding. Sprockets for Roller Chain. You'll find it advantageous to entrust your work to us.

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Industrial

Cut Gears · Cut Sprockets

INDUSTRIAL GEAR MFG. CO.
4547 VAN BUREN STREET CHICAGO 24, ILLINOIS

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Specializing in

TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

RALPH E. LOPER CO.

COST SYSTEMS WORK LOAD STUDIES
PAY ROLL CONTROLS
COST REDUCTION SURVEYS SPECIAL REPORTS

GREENVILLE, S.C. FALL RIVER, MASS.

Choose DEVOPAKE

for one-coat maintenance painting. It has won a host of friends in the textile field!

DEVOE PAINT NEW YORK • CHICAGO

PENETRANTS • DETERGENTS • SOFTENERS • REPELLENTS • FINISHES

BURK-SCHIER

BURKART-SCHIER CHEMICAL CO., CHATTANOOGA, TENN.

FOR
CLEANLINESS
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USE
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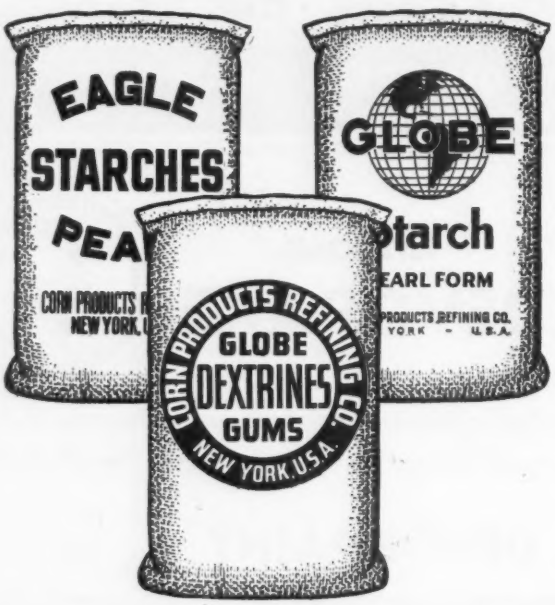
AND
Finishing
Starches



The uniformity, cleanliness and consistent high quality of Corn Products starches and gums are well-known to leading textile manufacturers. The technicians of Corn Products are always glad to help the manufacturer with Warp Sizing, finishing or other textile problems.

CORN PRODUCTS SALES COMPANY
17 Battery Place, New York, N. Y.

Textile Offices:

Greenville, S. C. Greensboro, N. C. Atlanta, Ga.
Spartanburg, S. C. Birmingham, Ala. Boston, Mass.

TEXTILE MILL NEWS

Cotton Mill News

American Thread Co., Tallapoosa, Ga., has awarded contract to A. K. Adams Co., Atlanta, for extension and improvements in the former mill of Tallapoosa Cotton Mills, recently acquired for a new branch unit. Plant will be used for manufacture of yarns, with an initial installation of 12,000 spindles. Robert & Co., Atlanta, textile and industrial engineers, are the architects for the project.

Balston Yarn Mill, Lincolnton, N. C., is rebuilding the left wing of its plant which collapsed Oct. 10 while the mill was idle. R. F. Gardner, plant superintendent, estimated the damage to building at between $50,000 and $75,000.

Brodnax (Va.) **Cotton Mill's** spinning room and all equipment therein was destroyed by fire Sept. 23. The loss is partially covered by insurance. Mrs. W. E. Dugger has been operating the mill since the death of her husband several months ago. Reconstruction is being considered.

Central (S. C.) **Mills** has sold 100% of its common stock to Cannon Mills Co.

Constee (S. C.) **Mills,** in liquidation for some time, have been purchased by Henry P. Willimon and W. M. Shelton, Greenville, S. C., for a reported consideration of $70,000. This includes all real estate, mill buildings, mill village, power house, etc.

Connecticut Lace Co., Inc., Norwalk, Conn., has awarded contract to William J. Lyons Co., Norwalk, for a small 1-story addition, 20x30 ft., on Muller av. Estimated cost is $2,000.

Everlastik, Inc., Chelsea, Mass., is making repairs at its plant at 181 Spencer Av. Vappi & Co., Cambridge, has a $4,500 contract for the work.

Firestone Tire & Rubber Co., Akron, Ohio, has purchased the Bennettsville, S. C., plant of Marlboro Cotton Mills, employing 380 persons and plans to convert it for the manufacture of cotton tire cord fabric. Firestone will take over the plant after it has fulfilled existing contracts for single and plied cotton yarns. It is understood it will operate on three full-time shifts. A small addition is to be made at one end of the plant for new machinery. David D. Carroll, of Bennettsville, is president of Marlboro Cotton Mills, which also owns a plant at McColl now leased to the Plymouth Mfg. Co.

Firestone Cotton Mills of Canada, Ltd., Woodstock, Ont. (previously reported) have awarded general contract to J. A. Vance, Woodstock, for proposed new mill addition, to cost close to $200,000, with machinery, instead of smaller sum, previously noted.

Goodyear Tire & Rubber Co., Akron, Ohio, has awarded contract for the construction of a $1,000,000 addition to its Decatur, Ala., cotton fabric mill. The one-story addition will more than double present capacity of the plant. The new building is scheduled to be completed by March 1, 1944.

International Braid Co. of New Jersey, care of Henry T. Stetson, 21 South Day St., Orange, attorney and representative, has been chartered with capital of 1250 shares of stock, no par value, to operate a textile mill in that vicinity.

Kestex Mfg. Co., 121 Prince St., New York, N. Y., manufacturer of braids, trimmings, etc., will remove to building at 38-44 West 21st St., where space recently was leased, expanding present capacity.

Sir Phillips-Chenille Toy Co., Dalton, Ga., is a newly established plant there by Phil Phillips.

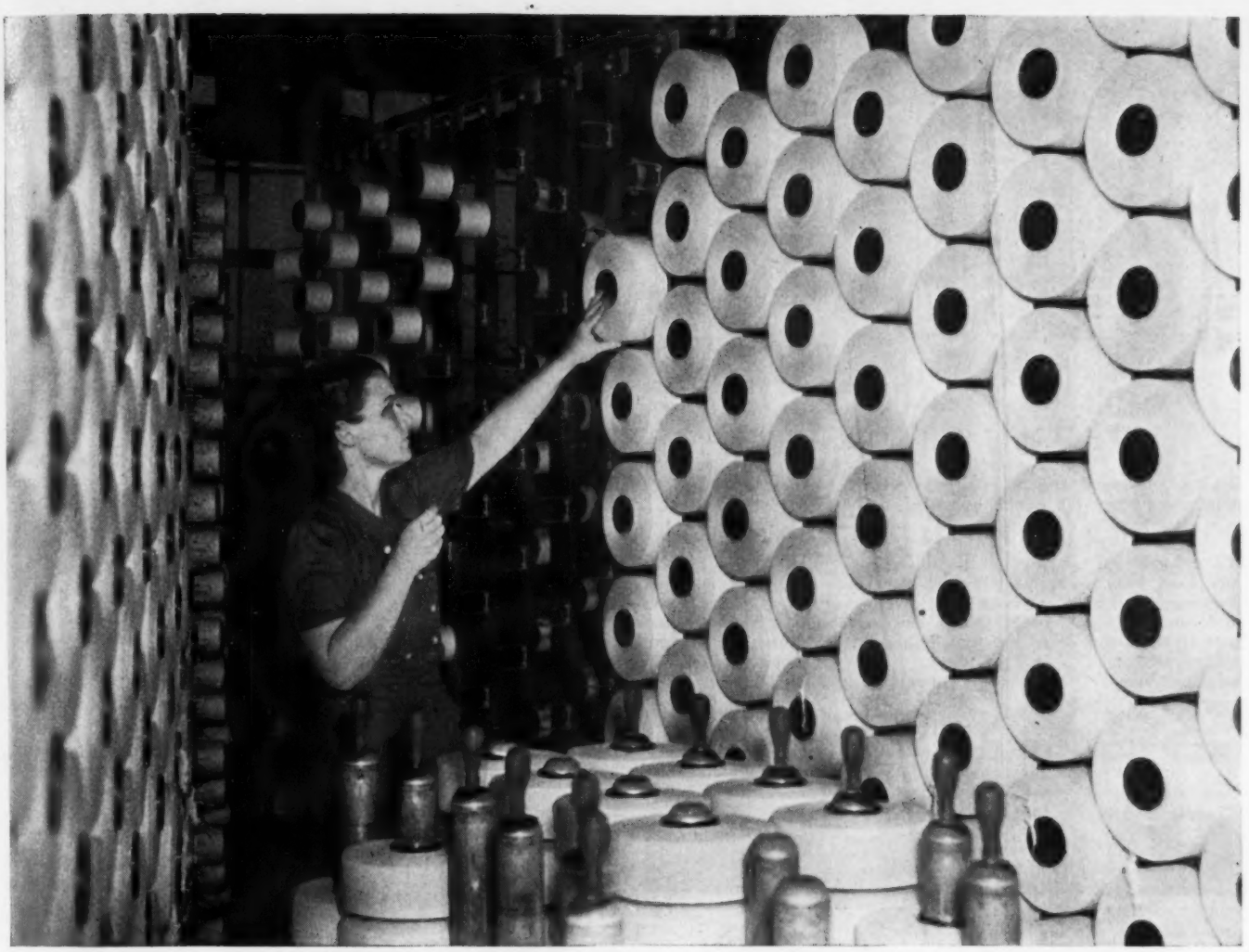
Whittenton Mfg. Co., Taunton, Mass., has been bought by Jacob Ziskin of Fall River.

Wool Mill News

Sidney Blumenthal & Co., New York, has been buying in preferred stock of the company. During the first six months of 1943 3,000 shares were acquired. This leaves 11,000 shares still in the hands of the public. Through these purchases arrears in the sinking fund have been obliterated.

Hardin (N. C.) **Mfg. Co.** suffered damage to the amount of several thousand dollars Oct. 4, when the waste house, where wool and rayon were stored, was completely destroyed.

Hayward Woolen Co., East Douglas, Mass., has been taken over by a group of men headed by Joseph G. Jacob, associated



The Creel that Turns Itself Inside Out

UNIQUE design of the Creel on the Barber-Colman Super-Speed Warper is one of several reasons why change time between warps is reduced to a minimum. This creel is made with traversable banks of cheese holders so that it can be loaded on the inside of the frame at the same time that a beam is being run from the cheeses on the outside. When the running beam is finished, the loaded banks are traversed to the outside and a new beam is starting to run within approximately 15 minutes after the previous beam was doffed. Features like this, which contribute to efficiency in obtaining high production, are important at any time — but especially so these days, when war goods are in urgent demand. Mills with Barber-Colman equipment are fortunately situated to keep up with today's high standards and demands on quality and volume requirements.

For Example . . .

The following production figures show results being obtained in a prominent mill running medium counts for two-ply twills used in uniforms and other similar military cotton goods.

Count	20s
Ends on Beam	396
Yards per Beam	20,000
Net Wgt. of Full Beam,	470 lbs.
Beams per Warper per 24-hour Day	28

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND

ATTENTION!

That's what your fabrics will get from the purchaser when you use

DRUMMOND SOAP

Here's why . . . If you have to meet Army Quartermaster Department specifications your fabrics will show a big improvement right down the line if you use

DRUMMOND SOAP

It's a high-body product of low alkali content . . . No filler of any kind . . . A high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for free working samples and test Drummond Soap on your own goods.

Protect the FUTURE of Your Business with WAR BONDS!

Standard Soap co. of camden

205 South 2nd St. Camden, N. J.

Woonsocket, R. I. G. TANGUAY 241 HARRIS AVE.

J. E. SIRRINE & COMPANY

Engineers

GREENVILLE SOUTH CAROLINA

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STEAM UTILIZATION - TOBACCO FACTORIES - KNITTING MILLS - LOCATION STUDIES

APPRAISALS - REPORTS - WATER TREATMENT - WATER SUPPLY - STUDIES - POWER

SCOTT TESTERS FOR WAR PRODUCERS

Adequate testing goes a long way toward solving today's unusual difficulties of meeting rigid specifications with overburdened machinery and with materials in many instances difficult to obtain. Let *Scott Testers aid you. Our 60 models test for single hair to 1 ton tensile, and for hysteresis, burst, twist, crepeage, etc., etc.

SCOTT TESTERS

*Registered Trademark

HENRY L. SCOTT CO. 95 Blackstone St. Providence, R. I.

with the woolen industry for more than 30 years as sales agent. He is president of the company. William E. Hayward is vice-president; Leo J. Murray, treasurer, and Edward P. Mone, assistant treasurer and clerk. The company was part of Hayward-Schuster Co., Inc.

Mills of Lawrence, Inc., Lawrence, Mass., care of Samuel P. Kaplan, 45 Milk St., Boston, Mass., representative, have been incorporated with capital of 100 shares of stock, no par value, to take over Washington Mills of American Woolen Co., Lawrence, recently purchased. As reported, property will be modernized and improved by new owner, with space to be leased to various textile and other industrial companies. Plant totals about 1,600,000 sq. ft. of floor space. Morey A. Getz is president.

Norwood (N. C.) **Mfg. Co.** has been acquired by Collins & Aikman Co.

St. Amant Mfg. Co., a new enterprise, has cards, picker and duster in a building at Woonsocket, R. I., for commission dusting and carding of wool and wool waste. The proprietor is George St. Amant.

Somersworth (N. H.) **Textile Co.** has suffered damage from a fire which broke out on the roof Oct. 11.

Knitting Mill News

Adams-Millis Corp., No. 4 unit, Kernersville, N. C., has been sold to the Palmer-Bee Co., Detroit, Mich., manufacturers of mechanical handling equipment, and it will be equipped for other production.

Barbison Knitwear Corp., care of Harry T. Lindauer, 130 West 42nd St., New York, attorney and representative, has been chartered with capital of 100 shares of stock, no par value, to manufacture a line of knit goods. Proposed to operate a mill in New York area.

T. B. Earle, president and operator of Earle Hosiery Co., 132 Brecard Court, Charlotte, N. C., which purchases full-fashioned hosiery in the gray and finishes them for distribution to the wholesale trade, on Sept. 25 purchased the two-story building, 23x68 ft. at 213 South Popular Street from the Z. T. Smith estate, and after making some necessary alterations, will move his plant there about Nov. 1.

Hand Knit Hosiery Co., Sheboygan, Wis., has awarded contract to Arthur and Melvin Hummitzsch, Sheboygan, for alterations and improvements in mill.

Headen Hosiery Mills, Shelby, N. C., a newly established plant, has set up a branch unit at Cherryville, N. C., which will handle the looping operations, and the finishing operations will be done by the Shelby plant.

Jamestown, N. Y.—Former local mill of Hall Textile Corp., has been acquired by Lyon & Coulson, Inc., 1280 Main St., Buffalo, N. Y., manufacturer of sporting goods, which will occupy for new branch plant.

Judith Hosiery Co., Niota, Tenn.—Boyd Wilkins has been appointed receiver for this company, which recently suspended operations. Mill has been operated for sometime by Jack and Abraham Feinberg.

Lebanon Knitting Mill, Inc., Pawtucket, R. I., has made alterations for installation of new elevator facilities. Central Engineering & Construction Co., did the work. Monahan & Meikle were the architects.

Lees-Moodus Mills, Inc., Moodus, Conn., are considering early rebuilding of portion of mill recently damaged by fire, with loss reported close to $25,000, including equipment.

Munsingwear, Inc., Minneapolis, Minn., has opened a plant at Duluth to be devoted to the manufacture of parachutes for Army Ordnance. This is the fourth plant to be opened in Minnesota this year as a part of the new Munsingwear expansion program. Hartley Gullen will be production supervisor for the Duluth plant.

Pygmalion Novelties, Inc., 22 East Elm St., Chicago, Ill., manufacturer of knit specialties, has leased space in building at 700-720 North Michigan Ave., and will occupy for company headquarters, including sales offices, etc.

S. J. Hosiery Co., Conover, N. C., is the name of the former Star Hosiery Mill Inc. Company manufactures full-fashioned hosiery.

Se-Ling Hosiery Mills, Inc., Nashville, Tenn., will carry out expansion in mill, including installation of additional equipment for increased capacity of war materials. Cost estimated about $25,000, with financing provided by Defense Plant Corp., Washington, D. C. Output will be used by the Government.

Sturdy Boys Novelty Co., New York, N. Y., recently or-

HOW WILL YOUR PRESENT KNITTING MACHINES *"Measure Up"* TO POSTWAR NEEDS?

In contemplating the return of the hosiery industry to peacetime production, with new yarns and new competition, it's a good idea to take a "postwar look" now at your knitting machinery. How will it *measure up* to Tomorrow's demands?

For the S & W machines on the floor of your mill must do until after the duration. That's why, these days, *knitting machine maintenance* cannot be taken lightly . . . why the occasional replacement of worn-out parts is no longer "plant check up" enough. The wise manufacturer will include in any program of future planning *systematic maintenance of existing equipment.*

When hosiery machines operate efficiently, yarn is saved —an important economy now . . . "down-time" is cut considerably, and minutes count these days . . . percentage of rejects is lowered, too. But the "saving" that should mean most to mill management is in customer goodwill. Isn't it logical, then, that the mill which *maintains* existing equipment at peak operating condition will be in a much better position to meet the demands of postwar production?

To aid manufacturers in seeing to it that present knitting machines *will* "measure up" to future requirements, and to help protect this investment for the duration, Scott & Williams offers the services of its field organization. Let us survey the "overall condition" of your S & W equipment, recommend whatever readjustments may be needed to restore maximum efficiency. Mills taking advantage of this "machine conditioning" have reported encouraging results. You can put the same Scott & Williams service to work for you.

• • •

This much is certain . . . the hosiery industry will not go back to where it left off. War is telescoping years of progress into months. Here at Scott & Williams, we are planning for Tomorrow, too . . . in terms of the knitting machines you will need to meet after-Victory hosiery demands. If you would like to "talk things over," drop us a line.

"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

EMPIRE STATE BUILDING NEW YORK 1, N. Y.

WHITMAN YARNS
WORSTED • COTTON • SPUN RAYON

ARLINGTON MILLS
LAWRENCE, MASS.

•

MONOMAC SPINNING CO.
LAWRENCE, MASS.

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NONQUITT MILLS
NEW BEDFORD, MASS.

WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

"YOU CAN COUNT ON WAK COUNTERS"

They are

RUGGED
ACCURATE
DEPENDABLE

We build single, double and triple pick counters; yardage, rotary, ratchet and special counters.

Write — Phone — Wire

WAK INDUSTRIES
CHARLOTTE, N. C.

THE LOYAL T. IVES COMPANY
EST. 1874

SPRING BEARD KNITTING NEEDLES

For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

NEW BRUNSWICK NEW JERSEY

ganized to manufacture knit goods, has leased space in building at 166 Fifth Ave., and will occupy for plant.

Walnott Knitting Co., Utica, N. Y., has been acquired by new interests headed by Max Schiffman and A. L. Maddans, which will take over property at once, continuing operations as heretofore under present name. Company has leased a one-story industrial building on Hotel St., and will use for expansion, removing equipment from a mill at Pawtucket, R. I., for this purpose. Joseph Karpeles will be superintendent at plant.

Rayon & Silk Mill News

American Enka Corp., Enka, N. C., has awarded additional contracts for expansion in mill, recently noted, including award to Merchant Construction Co., Asheville, N. C., for addition to pulp storage building; and to Dave Steel Co., Asheville, for steel frame superstructure for several buildings. Entire project will cost about $5,000,000.

American Viscose Corp., Front Royal, Va., is constructing additions to its Front Royal plant to provide for greatly increased production of high-tenacity yarn for the Government, as recently noted. Gerald S. Tompkins, plant manager, said the construction will require the remainder of 1943 and most of 1944. The plant will become the largest of Viscose's seven plants. Mill facilities will be developed for a rated output of about 50,000,000 lb. of high-tenacity rayon yarn yearly. Cost reported over $5,000,000.

Carwan Spinning Co. recently started operations in part of the old Royal Mill at West Warwick, R. I. Paul A. Raich, president, and Walter H. Michel, vice-president, are owners of the New York firm of Raich & Michel. A. R. Heritage is superintendent of the Carwan plant.

E. I. du Pont de Nemours & Co., Rayon Division, Ampthill, near Richmond, Va., has authorized expansion at mill, including several new one and multi-story buildings, to be equipped for production of high-tenacity rayon yarn for tire manufacture. Both Nos. 2 and 3 mills are included in program. Cost estimated about $7,000,000, with machinery. A priority rating has been secured and work will proceed at once. Program may include construction of a new plant for the manufacture of tire fabric. The latter is unconfirmed but a conversion program to produce 7,000,000 lb. of Cordura a year is under way at the Ampthill plant.

International Looms of New Jersey, Inc., Elizabeth, N. J., have purchased Vigilant Mills, Inc., Adams Ave. and Leiper St., Frankford, Philadelphia, Pa., including equipment, comprising about 80 looms. New owner will modernize and improve plant for new branch mill. Capacity will be increased with installation of about 50 new automatic looms and auxiliary equipment. Plant will be operated as Vigilant Mills Corp.

Macrae Fabrics, Inc., recently organized, care of Cassedy & Northrop, 43 Third St., Newburgh, attorneys and representatives, plan operation of local mill for manufacture of rayon fabrics. Company is capitalized at 1200 shares of stock, no par value.

Newmarket Mfg. Co., Lowell, Mass., is renewing production of rayon gray goods in part of its original plant at Newmarket, N. H.

Stark Bros. Ribbon Corp. of Canada, Ltd., Granby, Que., has begun construction of one-story addition, for which general contract was recently awarded to Marquis Co., Granby. Cost reported close to $50,000, with equipment.

Textile Products, 181 Chestnut St., Newark, N. J., has taken over a two-story building at 113-17 Pacific St., recently purchased, and will improve and occupy for expansion.

Westover Fabrics, Inc., West Warwick, R. I., rayon gray goods, has been taken over by Myron Alexander of Alexander & Strasbourger and David E. Seidman.

Processing Plant News

Century Coating Co., Inc., Long Island City, N. Y., represented by Murray R. Paris, 521 Fifth Ave., New York, attorney, has been organized with capital of $50,000, to operate a local textile finishing mill.

Frank G. W. McKittrick & Co., Lowell, Mass., has purchased for $6,500 the machinery and equipment of the Textile Engraving Corporation, Providence, R. I., from the receiver.

In Rain or Snow or Muggy Heat

Wherever they are — wherever they may go — our fighting men have the constant protection of fabrics finished to meet the needs of global war. With experience born of peacetime service but with a resourcefulness geared to the needs of war, Arkansas takes pride in producing at top speed for textile processing and finishing plants whose fabrics must meet rigid government specifications.

FUNGICIDES for all types of Government Fabrics

Highly Efficient — Non-Toxic — Non-Irritating

FUNGICIDE M: a single product combining a mildew inhibitor and water repellent for producing a mildewproof water repellent finish on cotton in one operation.

FUNGICIDE P. G.: an anti-mildew agent for mildewproofing cotton by the two bath process.

FUNGICIDE G: used in conjunction with water repellents in a one bath treatment to mildewproof cottons and impart a water repellent finish.

FUNGICIDE A: for cloth coating processes — dissolved directly in the resin solution.

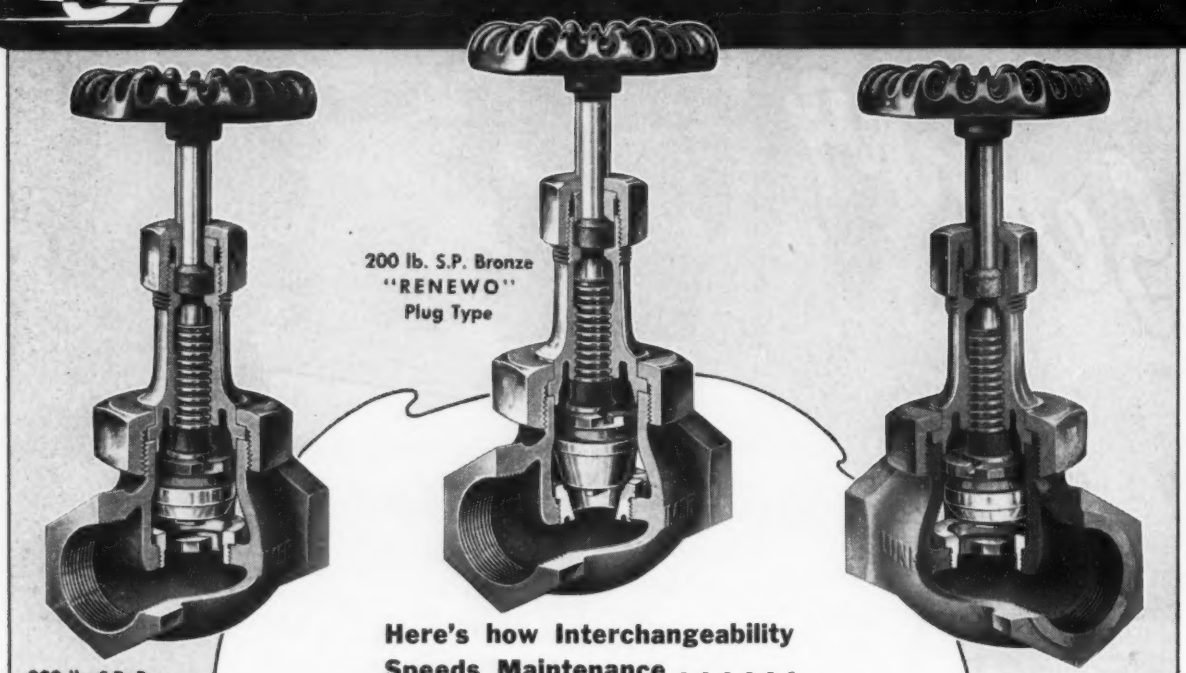
FUNGICIDE P: made expressly for use in the pigment impregnation process.

ARKANSAS CO. INC., NEWARK, N. J.

Established over 38 years

Simplicity of Design Means Easier Maintenance

INTERCHANGEABILITY Speeds Maintenance . . .



Here's how Interchangeability Speeds Maintenance . . . . . .

All parts of the valves above (except bodies and bonnet rings) fit each other perfectly. If, for example, you need a stem, disc or seat ring for the "Renewo", you can use the corresponding part of the "Ferrenewo," *it is exactly the same.* This means fewer parts to be carried, speedier repairs and greater ease in making them. This flexible interchangeability likewise applies between the various 300 lb. S.P. "Renewo" Valves.

Never has proper valve maintenance been so essential as now. With the scarcity of new valves, it is all-important to take the best of care of those you have in service. The necessity for uninterrupted operation demands no less.

With regular checking and inspection of this vital equipment and prompt servicing when necessary, valve life can be lengthened materially. It may save costly repairs later, and the possible shut-down of equipment.

The simplicity of design of Lunkenheimer "Ferrenewo" – "Renewo" Valves, with interchangeable parts, makes them easy to keep in good operating condition – easy to maintain. It means speedier repairs with minimum expenditure for maintenance.

Use the complete facilities of Lunkenheimer distributors.

ESTABLISHED 1862
THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI 14, OHIO. U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK 13, N. Y.

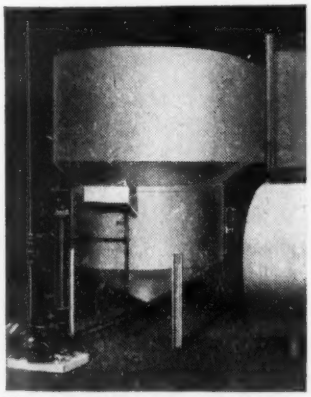
BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S.P.; BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS. ASK FOR CATALOG 78

SALTY SAYS:

"ON THE LEVEL... 100% SATURATED BRINE ASSURES LEVEL DYEING!"

"ARE YOU having trouble eliminating spotting, streaking and white edges? Then you ought to switch from dry salt to brine. You see... brine disperses *evenly* throughout the vat... there are no undissolved crystals to ruin the dye-lot. Only you *must* use a 100% saturated brine.

"And that's easy when you install a Lixate Dissolver! It produces a brine of absolutely 100% saturation and 100% clarity—a brine unobtainable with ordinary stirring-type devices—whether manual or machine operated. To prove Lixate Brine's 100% saturation to your own satisfaction, you need but take a single reading with a salometer!



"Here's the Lixator installed at the Allied Textile Printers Inc., Paterson, N.J."

"Further, a Lixator will cut your costs. It requires no power for it has *no* moving parts! And it doesn't cost you a fortune to install. In fact, you merely lease the Lixator at a very nominal annual sum. Then up goes the efficiency of your operation and down go production costs. The Lixator requires 10% to 20% *less* salt —utilizes inexpensive Sterling Rock Salt.

"Not only will the Lixator help you to achieve level dyeing... it will give you *perfect* zeolite water softener regeneration every time. You couldn't ask for more!"

"IT'S FREE!"

"Let me send you this 36-page fully-illustrated booklet on the Lixate Process for making brine. It gives you all the facts—installations, brine tables, diagrams, formulas. Just write for *your* copy!"

The LIXATE *Process*
Reg. U. S. Pat. Off.
for making brine

INTERNATIONAL SALT COMPANY, INC., DEPT. T-11, SCRANTON, PENNSYLVANIA

Reg. U. S. Pat. Off.

UNBRAKO

Self-Locking HOLLOW SET SCREWS *with the KNURLED POINTS*

Where ordinary set screws fail to hold, "Unbrako" Self-Lockers stay put for keeps. Their knurled points dig in when the screws are tightened as usual so vibration can't dislodge them — yet they can be backed out with a wrench and used again and again. Apply this safeguard against breakdowns in your mill — today! "Unbrako" Self-Lockers come in sizes from No. 4 to 1½" diameter; and deliveries are better than average. Write for Catalog giving complete information.

Over 40 Years in Business

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA. BOX 571

— BRANCHES —

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

KNURLING OF SOCKET SCREWS ORIGINATED WITH "UNBRAKO" YEARS AGO

ONYX

FOR BETTER LOOKING—BETTER WEARING FABRICS

OFFICIAL U. S. NAVY PHOTOGRAPH

JOURNEY'S END

A Marine safely at journey's end thanks to his parachute. Trained in the intricacies of its use, Marines are able to reach land safely, despite the hazards of war and the elements. His parachute has been brought to its present high state of efficiency by the ingenuity and skill of the American Textile Industry in cooperation with U. S. Navy experts. Not the least important step in the making of Marine parachutes is the processing and finishing of the fabric which helps make the parachute strong, flexible and durable. Onyx textile processing and finishing compounds have helped make, not only parachutes, but hundreds of other textile articles give better service in the many uses of Marine activities throughout the world.

If you have a processing and finishing problem let Onyx Research and technicians work it out with you. They have helped many mills and dyers, they may be able to help you. Your inquiries are solicited.

onyx onyx

ONYX OIL & CHEMICAL COMPANY

JERSEY CITY, N. J.

New England Office: 511 Westminster Street, Providence, R. I. • Charlotte Office: 124 East Third Street, Charlotte, N. C.
Mid-Western Representatives: Maher Color & Chemical Co., Chicago Ill.; Los Angeles, Calif.
In Canada: Onyx Oil & Chemical Co., Ltd., Montreal, P. Q.; Toronto, Ont.

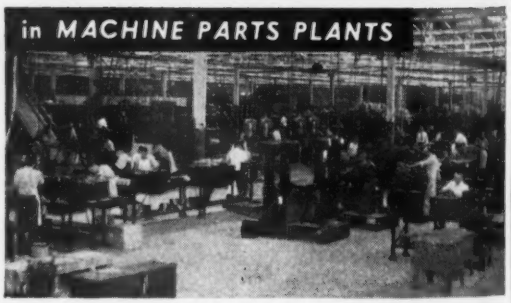
XYNOMINE — PHI-Φ-SOL — ONYXSAN — ETERNALURE — REPEL-O-TEX

Here Are

A Few of the Industries

in which

GATES V-BELTS of Synthetic Rubber



-and Many Others

Have Been Tested and *Proved*

by *YEARS* of *SERVICE*

Five years before natural rubber supplies began to be curtailed, Gates was already supplying many industries with large quantities of V-Belts made entirely of synthetic rubber.

The synthetic rubber used was a very special one and was not used as merely a substitute for rubber. It was used because, in many applications, it is greatly superior to natural rubber. For example, under severe conditions of heat and oil, the Gates special synthetic V-belt actually outwears belts of natural rubber by as much as 230%.

This is the record *not* of just a *few* belts over a *short period* of time. It is the record of *thousands* upon *thousands* of Gates special synthetic rubber V-belts that have now been tested and proved by *years* of service in Aircraft Factories, in Ordnance Plants, in Steel Mills, in Machine Parts Plants, in Lumber Dry Kilns, in Food Processing Plants—in every kind of installation where heat and oil conditions are *excessively severe*.

The time has now come when Gates long and successful experience in the fabrication of synthetic rubber V-belts is particularly to your advantage because it can *now* be put to work for you *right in your own plant*.

You have only to look in your telephone directory and call the Gates Field Engineer. He will put at your service the full benefits of Gates knowledge and experience *without the slightest obligation*.

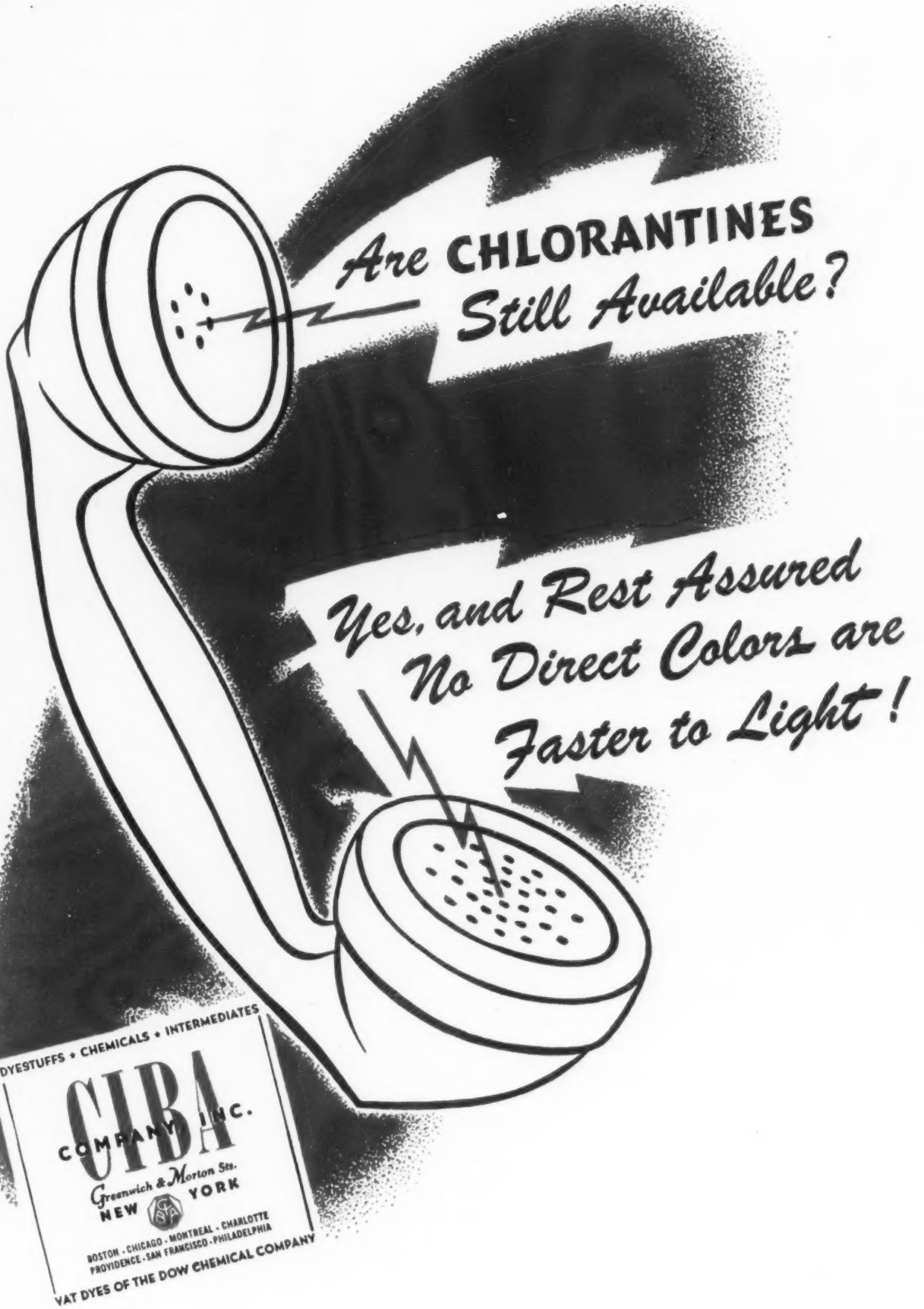
THE GATES RUBBER COMPANY

4311

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington
DALLAS, TEXAS 2213 Griffin Street
NEW YORK CITY 215-219 Fourth Avenue
BIRMINGHAM, ALA. 801-2 Liberty National Life Building
DENVER, COLO. 999 South Broadway
CHARLOTTE, N. CAROLINA 507 Builders' Building
GREENVILLE, S. CAROLINA 104 West Washington Street
ATLANTA, GA. 738 C. & S. National Bank Building

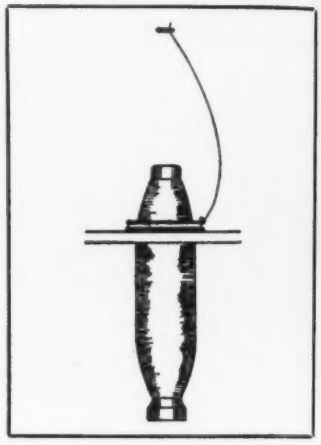

Are CHLORANTINES Still Available?
Yes, and Rest Assured No Direct Colors are Faster to Light!
DYESTUFFS • CHEMICALS • INTERMEDIATES
CIBA COMPANY INC.
Greenwich & Morton Sts.
NEW YORK
BOSTON • CHICAGO • MONTREAL • CHARLOTTE
PROVIDENCE • SAN FRANCISCO • PHILADELPHIA
VAT DYES OF THE DOW CHEMICAL COMPANY

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, L. S. Ligon, Greenville, S. C.

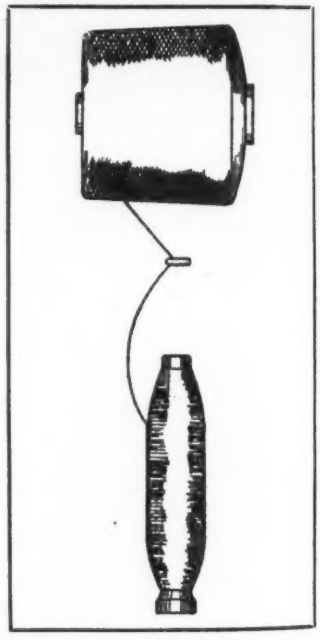
WE RECOMMEND:



SPIN ALL YARNS ON TO LARGE WARP BOBBINS UP TO 8 OZ. DEPENDING ON COUNT

SAVE DOFFING AND INCREASE SPINDLE EFFICIENCY

WIND AND SLUB TO LARGE 4° CONES AT 600 TO 750 YARDS PER MINUTE



900 TO 1000 NET BOBBINS PER HOUR PER OPERATOR

USING:-

ABBOTT TRAVELING SPINDLE
AUTOMATIC CONE WINDER

FROM THESE CONES:-

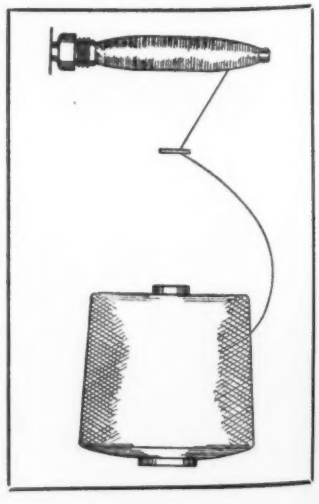
WARP AT HIGH SPEED
FROM A MAGAZINE
CONE CREEL

OR

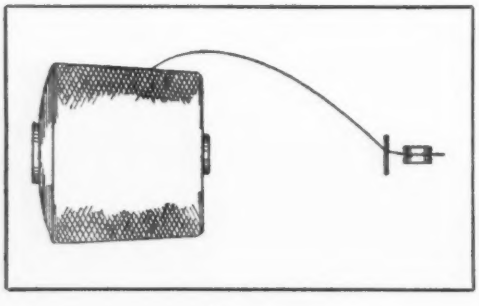
WIND LOOM QUILLS

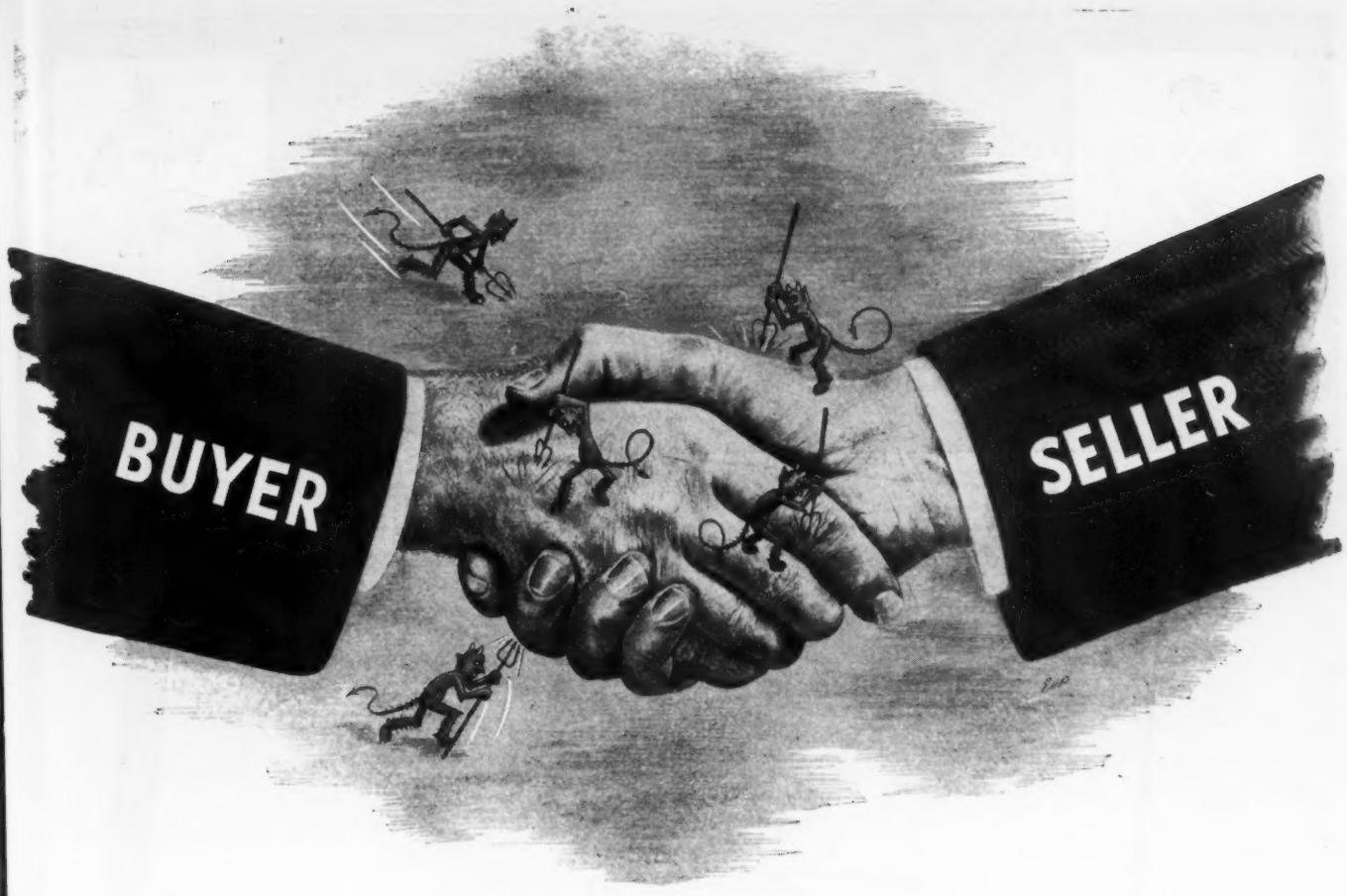
USING:-

ABBOTT
AUTOMATIC
QUILLER



1000 TO 2000
BOBBINS PER
HOUR PER
OPERATOR





. . . *divided we fall!*

A THOUSAND devils beset the buyer-seller relationship today . . . restrictions, allocations, shortages, delays . . . but we must not, we cannot lose our grip.

The delicate equilibrium of American enterprise, during these troublesome times, lies in our grasp. If we fail now, all is lost . . . the value of past relationships and the opportunity of quick post-war adjustments.

Only tolerance and understanding can hold the tie that promises re-employment to our boys overseas. It takes a *WILL* to hold on . . . *GOODWILL!* Will you lend a helping hand?

NATIONAL STARCH PRODUCTS
INCORPORATED
270 MADISON AVENUE, NEW YORK 16, N. Y.
CHICAGO — PHILADELPHIA — BOSTON — INDIANAPOLIS — SAN FRANCISCO

← From Her Day...

...to Her Day →

MANY OF THE SAME MONEL DYEING MACHINES HAVE SERVED GOTHAM

GOTHAM GOLD STRIPE

GOTHAM SILK HOSIERY COMPANY, INC
200 MADISON AVENUE
NEW YORK

GOTHAM HOSIERY COMPANY, INC.
JASPER & BUTLER STS.
PHILA, PA.

December 23, 1942

The International Nickel Co., Inc.
67 Wall Street
New York, N. Y.

Gentlemen:

In reply to your inquiry of December 17, we are pleased to advise you that some of the Smith-Drum Monel Metal Rotary dyeing machines installed more than twenty years ago are still in operation and producing with as good results today, as they did then.

Very truly yours,

GOTHAM HOSIERY CO., Inc.

Reuben Jacobson

Reuben Jacobson
Supt. Finishing Plant
Jasper & Butler Sts.
Philadelphia, Pa.

RECORDS of steady service totaling 20 and 25 years are the rule . . . not the exception . . . for Monel textile equipment. A typical example is given in the letter reproduced above.

This trouble-free service of Monel equipment is especially important in times like this, when repair parts and service are so hard to get.

Peak production schedules are more easily maintained with Monel equipment. Down time is cut to a minimum.

Today, all new output of this long-lived, corrosion-resistant metal goes to our armed forces. After the war, Monel will be available once more for those who are looking for the best in textile equipment.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK 5, N. Y.

Ahcofix A

A NEW SYNTHETIC AGENT FOR FIXING DYESTUFFS

An AHCO PRODUCT

CHARACTERISTICS

1. Prevents bleeding of direct dyes during finishing operations.
2. Improves water fastness of finished fabrics.
3. Minimizes need of subsequent finishing operations, due to softening effect.
4. Resistant to washing, dry cleaning and perspiration.
5. Resistant to hard water, acids and normal salt concentrations.
6. Easily applied and economical to use.
7. A white paste sold in kegs or barrels.

PRICES AND FORMULAS ON REQUEST

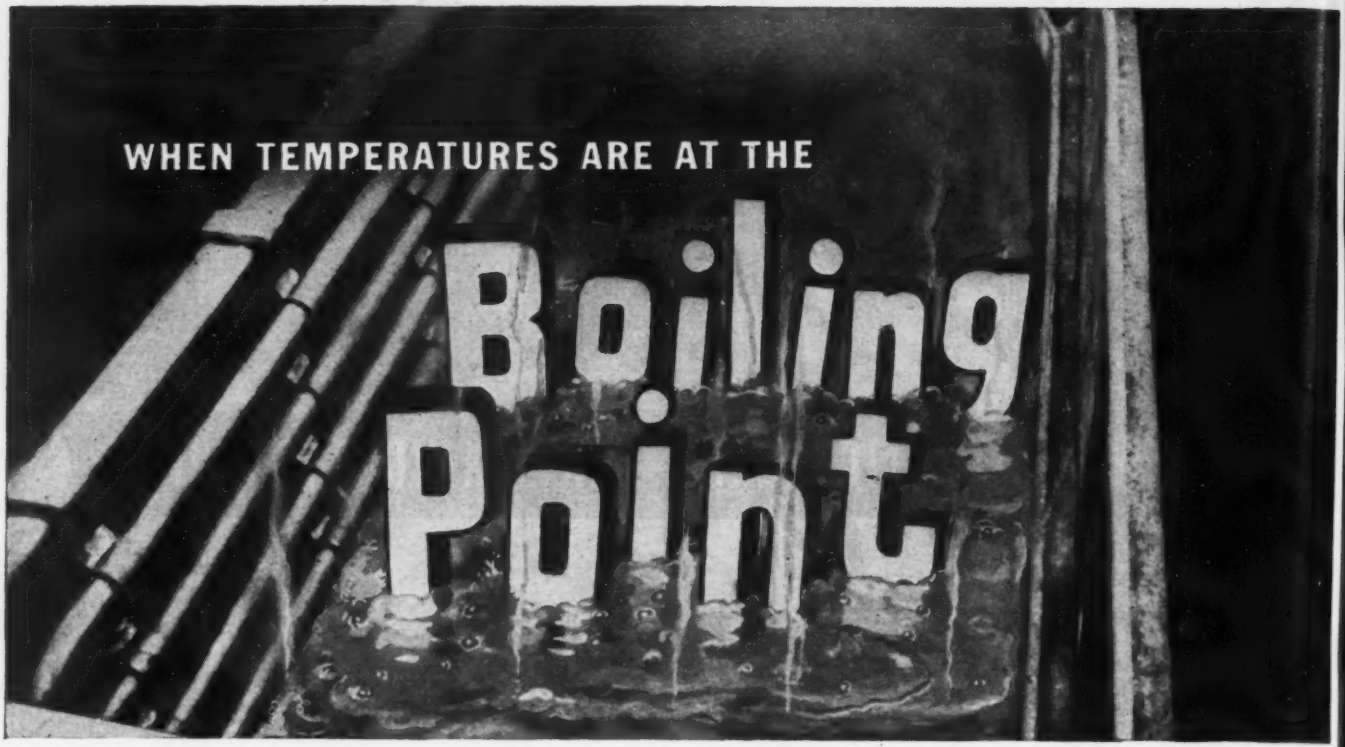
ARNOLD, HOFFMAN & CO., INC.

Established 1815 • Plant at Dighton, Mass.

PROVIDENCE, RHODE ISLAND

New York • Boston • Philadelphia • Charlotte

How to Keep Acids Working for Victory . . . . . No. 4



Helping America's process industries win the battle of materiel production is their acid handling equipment. It must stay in the production line—and Tellurium Lead is helping keep it in fighting trim.

* * *

Every plant man concerned with the maintenance of such chemical apparatus recognizes *heat* as Equipment Enemy No. 1. Aside from its effect on the physical properties of corrosion-resistant metals, heat accelerates corrosion. Solutions and gases easily controlled at room temperatures become increasingly destructive as the heat indicator rises.

In a number of plants* Tellurium Lead has made it possible for equipment to operate satisfactorily at temperatures which made short work of the lining and piping materials previously employed. For this reason it is generally recognized as the "high temperature lead."

Evidence of Tellurium Lead's ability to withstand corrosion at the higher heat levels is given by the results of the flash test reported at right.

Undoubtedly one factor contributing to its corrosion resistance at elevated temperatures is Tellurium Lead's stability of grain structure under prolonged heat exposure—see accompanying photomicrographs. * * *

Tellurium Lead has also been found to perform well under conditions where repeated and abrupt temperature changes, with resulting expanding and contracting forces, subject equipment to recurring stresses. This is thought to be due, among other things, to Tellurium Lead's *work-hardening* characteristic. As this lead is worked, it is toughened—increased in tensile strength.

The work-hardening property of Tellurium Lead is also a safeguard wherever lead must be bent, stretched or hammered, as in elbows, flanges, coils, joints and turnover points.

* * *

Another frequent requirement of acid handling equipment is resistance to vibration. The resultant fatigue stresses, acting in combination with corrosion, are more disastrous than either factor alone. To meet this condition Tellurium Lead not only has the acid corrosion resistance for which lead is noted but also, under vibration tests, it exhibits a 60% greater endurance limit than lead without the tellurium addition.

* * *

Tellurium Lead of our manufacture is time-tested St. Joe chemical lead alloyed with a small quantity of tellurium. It is available in sheet or pipe form, or fabricated in coils for heating and cooling purposes.

For further information address the nearest Company branch listed below.

*TYPICAL CASE HISTORIES

One user of Tellurium Lead reported that eight months after installation, "the lining in our tub showed little if any corrosion due to the action of the 10 per cent boiling sulphuric acid to which it is exposed."

* * *

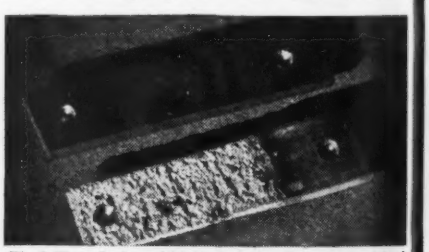
Another user — whose equipment is subjected to temperatures ranging up to 356° F. — says, "we find Tellurium Lead withstands chemical action to a much greater extent than the material used previously."

* * *

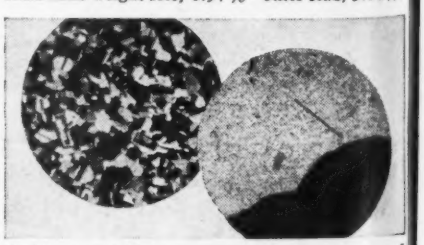
Another company tried a Tellurium Lead heating coil in a plating tank where the average coil life was ten weeks. The Tellurium Lead coil more than doubled this average — stood up for six months.

* * *

Still another company is using Tellurium Lead to line tanks handling phenolic compounds and sulphuric acid at temperatures ranging up to 376° F. Previous lining materials pitted badly after short service. Several of the Tellurium Lead linings have been in three years and have not yet required repair.



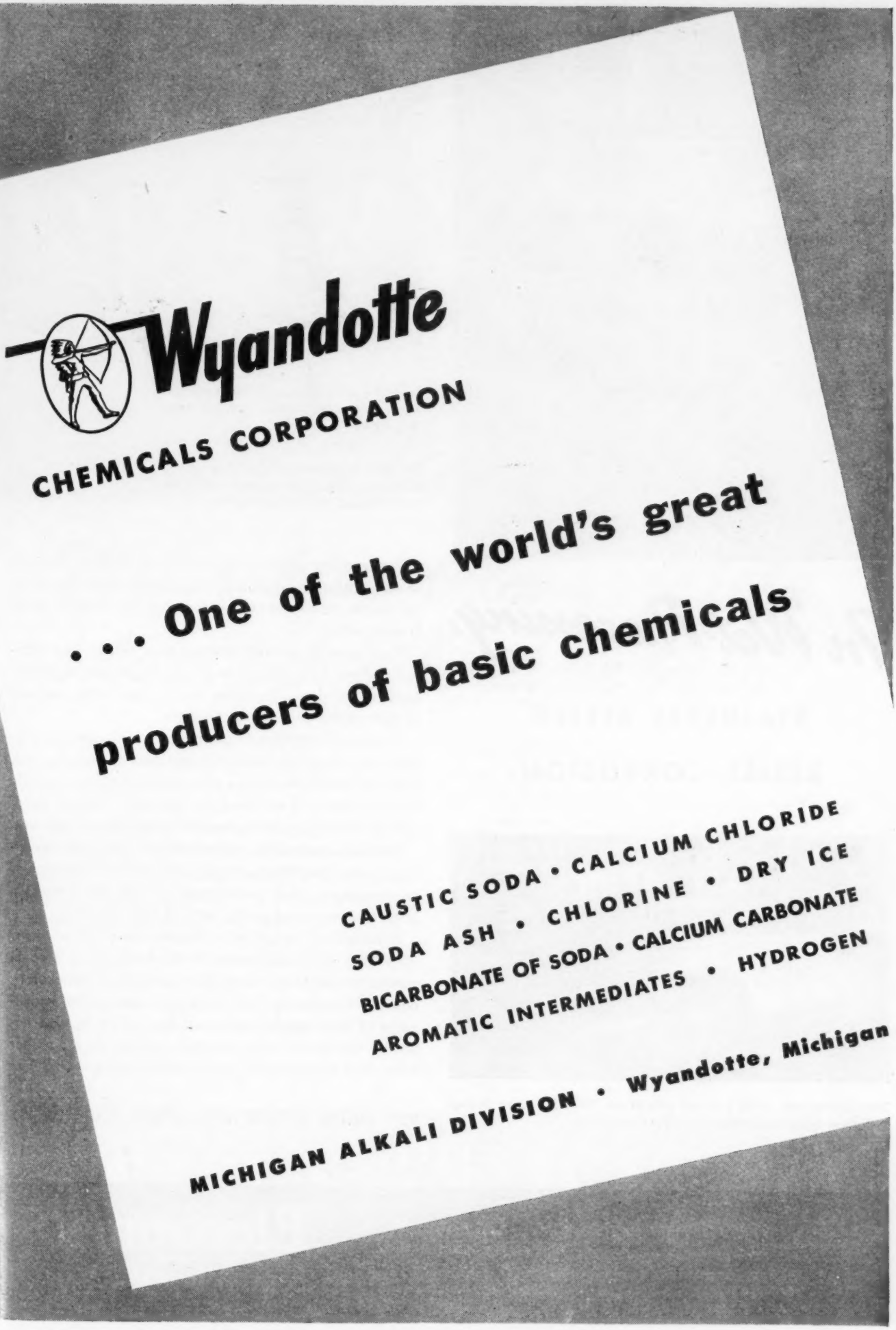
Flash Test: Strips of Tellurium Lead (top) and lead without tellurium (bottom) after immersion in 96% sulphuric acid at 581° F. for 3 minutes. Tellurium Lead weight loss, 0.97%—other lead, 5.11%.

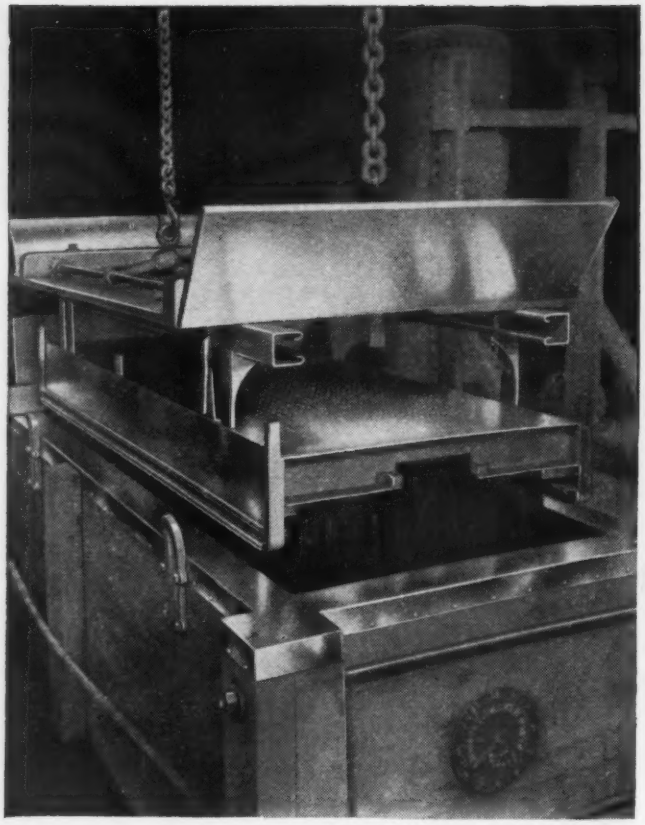


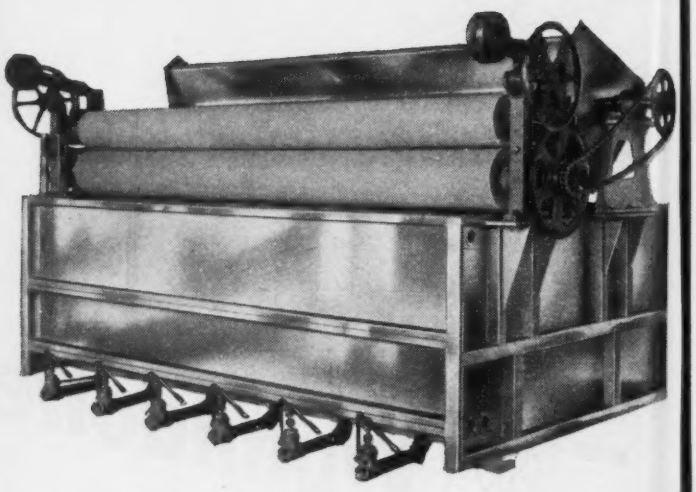
Stability of Grain Structure: Grain structure of Tellurium Lead (top) and lead without tellurium (bottom) after annealing six months at 302° F. The grains of the lead without tellurium "grew" during the annealing; those of Tellurium Lead remained the same size.

TELLURIUM LEAD

NATIONAL LEAD COMPANY—New York, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, St. Louis, National-Boston Lead Co., Boston; John T. Lewis & Bros, Co., Philadelphia; National Lead & Oil Co. of Penna., Pittsburgh; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis; Master Metals, Inc., Cleveland; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.


Wyandotte
CHEMICALS CORPORATION
. . . One of the world's great
producers of basic chemicals
CAUSTIC SODA • CALCIUM CHLORIDE
SODA ASH • CHLORINE • DRY ICE
BICARBONATE OF SODA • CALCIUM CARBONATE
AROMATIC INTERMEDIATES • HYDROGEN
MICHIGAN ALKALI DIVISION • Wyandotte, Michigan



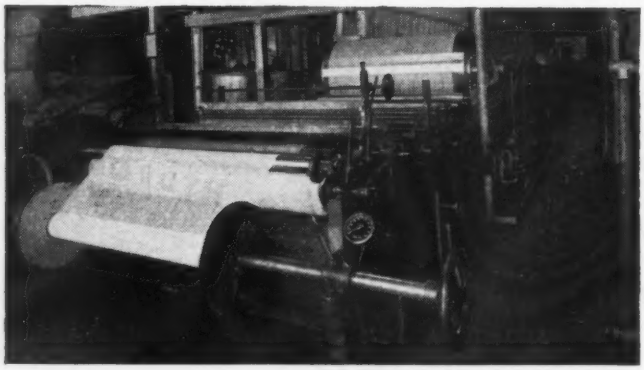


Even the most corrosive wash liquors are used with safety in this stainless steel slack-type rope washer (above).

The yarns dyed in this vat (left) are uniform, because stainless steel does not affect the chemicals used in dyeing operations.

In Wet-Processing

STAINLESS STEELS RESIST CORROSION



The stainless steel sizing box and rolls of this 7-cylinder rayon slasher guarantee long-time service in high-speed operations.

The corrosive effect of dyes and many other chemicals on wet-processing equipment has ceased to be a problem for textile manufacturers who are using stainless steels in their mills.

They have found that stainless steel retains its mirror-like surface even after years of contact with synthetic and natural dyes, bleaching agents, and acids, as well as many other processing chemicals.

Almost as important as permanent resistance to corrosion is the ease with which stainless steel can be cleaned. Since no chemicals or dyes are absorbed by the metallic surface, there is no need for lengthy "boiling out," making possible quick successions of runs in a single vat.

Stainless steels offer advantages in other mill operations...they are long-wearing and need a minimum of maintenance...their permanently smooth, hard surface helps to prevent snagging, tearing, and snarling.

Although we do not make stainless steel, we have for more than 35 years produced the ferro-alloys used in making stainless and other alloy steels. From laboratory and plant experience we have gained practical knowledge of their applications, and are ready to give impartial assistance in the selection of a stainless or other alloy steel to meet your particular requirements.

BUY UNITED STATES WAR BONDS AND STAMPS

ELECTRO METALLURGICAL COMPANY
Unit of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.
In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario

Electromet
Trade-Mark
Ferro-Alloys & Metals

Wofor klos bilong jufela solger luk all-same bush?

The South Sea native asks . . . in Pidgin English . . . "Why do your uniforms look like the jungle?"

Jungle uniforms worn by our boys mask their visibility against the tropical background and protect them from such hazards as malarial mosquitoes, poisonous thorn scratches . . . and just Japs.

We are proud that Stein-Hall sizing, finishing and printing materials are helping the Textile Industry to supply uniforms which make our fighting forces the best and most safely dressed in the world.

In spite of heavy war demands on our manpower, supplies and facilities, we shall strive faithfully to render you the same high degree of service as customary in peace times. If we fall short occasionally, we ask your indulgence.

And don't forget . . . *"Bayim mor faitim bonds!"* You can translate that one yourself.

* * *

If you'd like an original suitable-for-framing print of Brussel-Smith's wood engraving (top), drop a line to Stein-Hall.

77 YEARS OF STARCH SERVICE

STEIN HALL

285 MADISON AVENUE • NEW YORK 17, N. Y.
2041 SOUTH ASHLAND AVENUE • CHICAGO 8, ILL.
250 VAN HORNE STREET • TORONTO, CANADA

EST. 1866

LABORATORIES AT: NEW YORK
CHICAGO • CHARLOTTE • PROVIDENCE
LONG ISLAND CITY, N. Y.

A TEXTILE STARCH FOR EVERY TEXTILE PURPOSE

NO MATTER HOW YOU LOOK AT IT

The Fletcher Whirlwind Extractor is a product that's right from any angle!

MEMO:—Although Fletcher Whirlwind Extractors and other Fletcher Textile Machinery are at present available only for war production purposes, we suggest that you write now, and have your name put on our mailing list. We'll keep you informed as to the newest developments in equipment, as an aid to your post-war planning.

10 Advantages

1. Open top—built low—easy to load and unload.
2. Quick acceleration—high speed—thorough extraction in minimum time.
3. Deep basket—large capacity—stainless steel drum—no rust or discoloring.
4. Multiple V. belt drive—quiet, efficient, dependable—convenient, safe control.
5. Adjustable spring balance—insures stability even with loads badly out of balance.
6. Balanced curb—weight equally distributed on 3 stands—can be safely used on upper floors.
7. Durable construction—curb ⅜" boiler plate steel permanently riveted to base—no leakage possible.
8. Powerful self-energizing brake—easily disassembled for relining without taking apart rest of extractor.
9. Removable baskets—unloading nets—explosion proof motors—fume proof casings—special construction to suit requirements.
10. True "all around" performance—handles all classes of work without fear or favor—inherits the rugged qualities of the many Fletcher Extractors in daily operation after more than 50 years of service.

FLETCHER

FLETCHER WORKS • GLENWOOD AVENUE AND SECOND STREET • PHILADELPHIA 40

FORMERLY SCHAUM AND UHLINGER - ESTABLISHED 1850

Wonder of the Western World

Few regions in America have had such a dramatic history as that which centers about Niagara. It was strategic territory from the time of its discovery by the LaSalle Expedition in 1678, in the struggles during the French and Indian Wars and the Revolution. Today it is still a strategic territory, in that it is an area of vast industrial activity from which America derives electric power and great quantities of materials, such as chemicals and other products essential to the successful waging of the war.

As a chemical company noted for its pioneering activities, Niagara Alkali Company carries on the traditions of this region through the stepped-up production of essential chemicals and energetic cooperation with the industries that use them.

CAUSTIC POTASH · CAUSTIC SODA · PARADICHLORO-BENZENE · CARBONATE OF POTASH · LIQUID CHLORINE

ssential Part Of America's
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ARMY E NAVY

Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK 17, N. Y.

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No CALENDER can be better
than the *ROLLS* in it
HOLYOKE

PERKINS

The SUPREMACY of
PERKINS
CALENDER ROLLS
is the natural result of the broadest experience in the textile industry.

B. F. PERKINS & SON, Inc.
HOLYOKE, MASS., U.S.A.
LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

THE STAINLESS YOU GAVE UP

HELPS TUMBLE A "JERRY"

This is one reason why ARMCO Stainless Steels are restricted for textile equipment:

Flexible ammunition chuting made of these rustless metals is used in many of our bombers. These chutes guide bullet-filled belts from cartridge boxes to machine guns. Belts skim over the smooth surfaces without a hitch.

There are other important reasons for using ARMCO Stainless. This versatile metal is strong and durable; there is little danger that the flexible links will break during combat. It resists the severe abrasion of desert service or the corrosive attack of sea and jungle air. There are no rust particles to gather on cartridges or belts.

If you now have ARMCO Stainless Steel textile equipment its advantages are yours during the war. You can easily keep your equipment operating at peak efficiency. Just a few simple maintenance rules will make repairs and replacements unnecessary.

Helpful suggestions are given in a valuable folder titled, "Your Stainless Steel Equipment . . . Its Care and Advantages in Textile Processing." Write for a copy. The American Rolling Mill Company, 2971 Curtis St., Middletown, Ohio.

STAINLESS ARMCO STEEL

THE AMERICAN ROLLING MILL COMPANY

Top Performance

In scouring and dyeing unions

MODINAL DN can help you get consistently good results in scouring and dyeing unions.

For Modinal DN has high detergent properties with full penetrating action under acid, neutral, alkaline and hard water conditions.

The wetting action of Modinal DN is highly effective on all fibers. Its use brings about a fine dispersion of the dyestuffs in the bath. And it assists in promoting more uniform penetration and exhaustion of the dyestuff on the fiber, resulting in levelness.

Let Modinal DN help you get unions that are clear, bright and uniform.

Get help from our experienced men on technical production problems. Gardinol Corp., Gen. Offices, Wilmington, Del. Sales Agents: Procter & Gamble, Cincinnati, O.—E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Del.

*"Modinal" is the trade-mark used by the Gardinol Corporation to designate a group of its fatty alcohol sulfates.

MODINAL DN Fatty Alcohol Sulfates

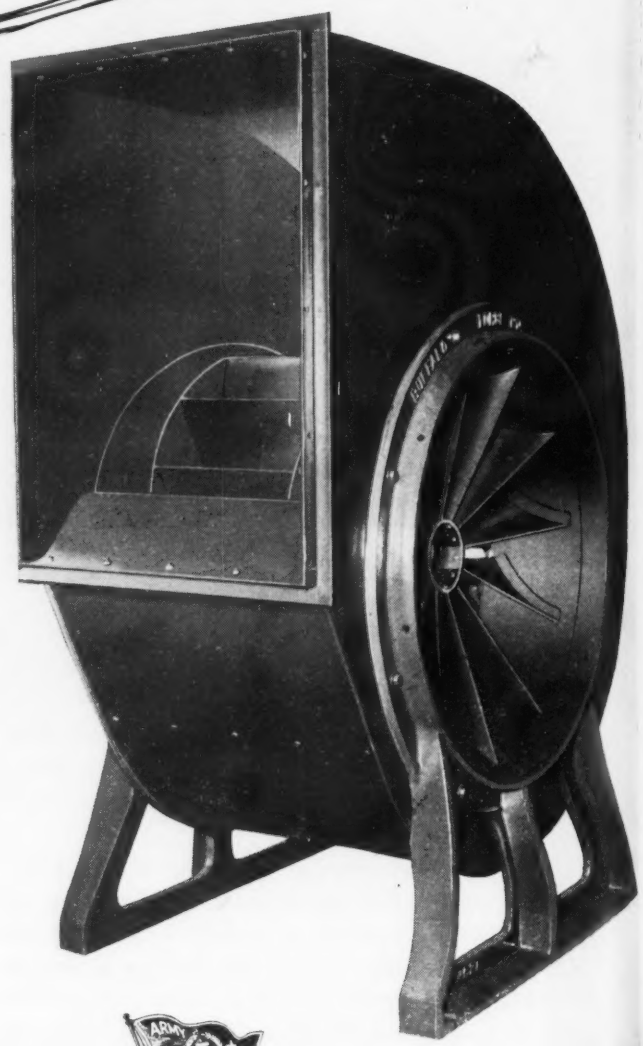
AIR-BORNE QUALITY

THRU... "Buffalo"

LIMIT-LOAD FANS

Yes, quality rides into many a textile mill on the air stream—propelled by "Buffalo" Limit-Load Fans. And this air plays a dual quality role: air exactly conditioned to the climate textiles require for processing . . . air clean and fresh to keep workers alert, efficient and healthy.

Is the air in your mill up to quality standards? "Buffalo" will gladly point the way to effective, economical air handling. Descriptive bulletins on "Buffalo" Fans will be sent on request. Just state the type of installation required.



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"Buffalo"

"First For Fans"

TIME-PROVED! TIME-TESTED!!

QUALITY ★ UNIFORMITY ★ DEPENDABILITY

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Complete line of *UNMODIFIED* and *MODIFIED*

TEXTILE STARCHES

TODAY as in WORLD WAR 1 ★ ★ ★ SERVING the TEXTILE INDUSTRY

A. E. STALEY MANUFACTURING COMPANY

DECATUR Staley's CORN AND SOY BEAN PRODUCTS **ILLINOIS**

ATLANTA, NEW YORK CITY, SPARTANBURG, CHICAGO, BOSTON

MACHINE GUNS TODAY...

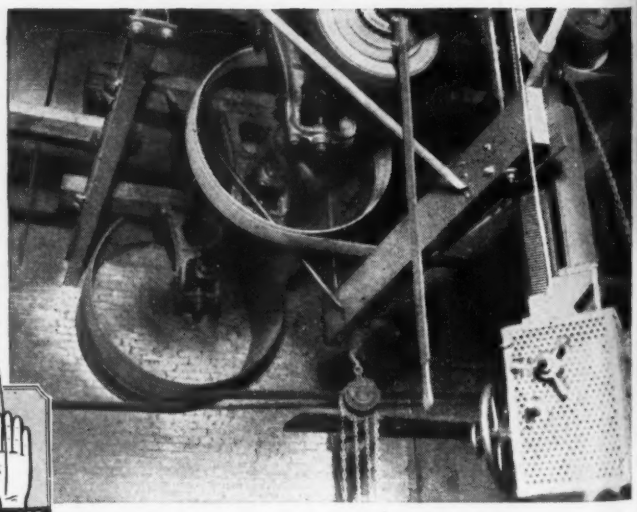
TYPEWRITERS TOMORROW

Wood's

POWER TRANSMISSION EQUIPMENT

All over America, industry is doing a magnificent job of producing the material that is speeding the day of Victory . . . the day when conversion to peacetime production must begin. That conversion must be rapid . . . competition will make it necessary.

For that reason, many plants with an aim to filling today's war production needs, yet with an eye to the future, are meeting their power transmission requirements with Wood's Equipment. It will do an equally good job today and tomorrow. Let us tell you more about Wood's Planned Power Transmission . . . or consult your local Wood's distributor.



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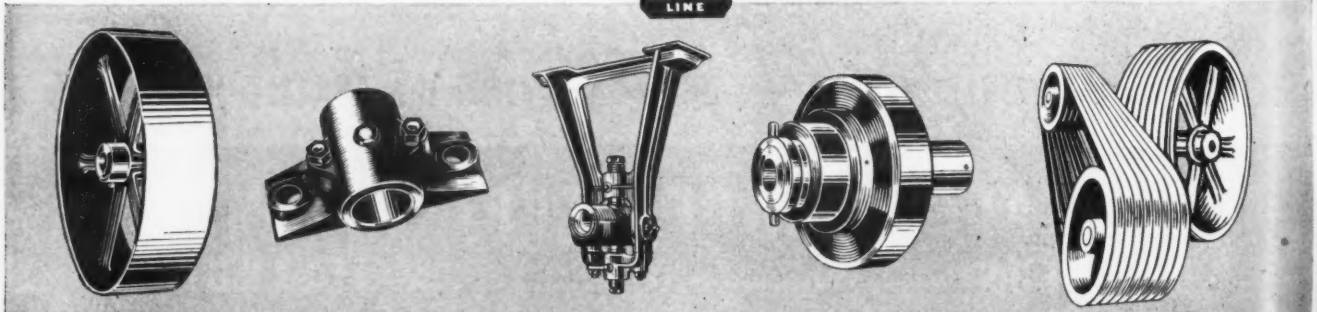
Bearings • Collars • Clutches • Couplings • Contactors • Hangers
Pillow Blocks • Pulleys • V-Belt Sheaves and Complete Drives.

BUY WAR BONDS . . . SPEED VICTORY

LONG LIFE LINE



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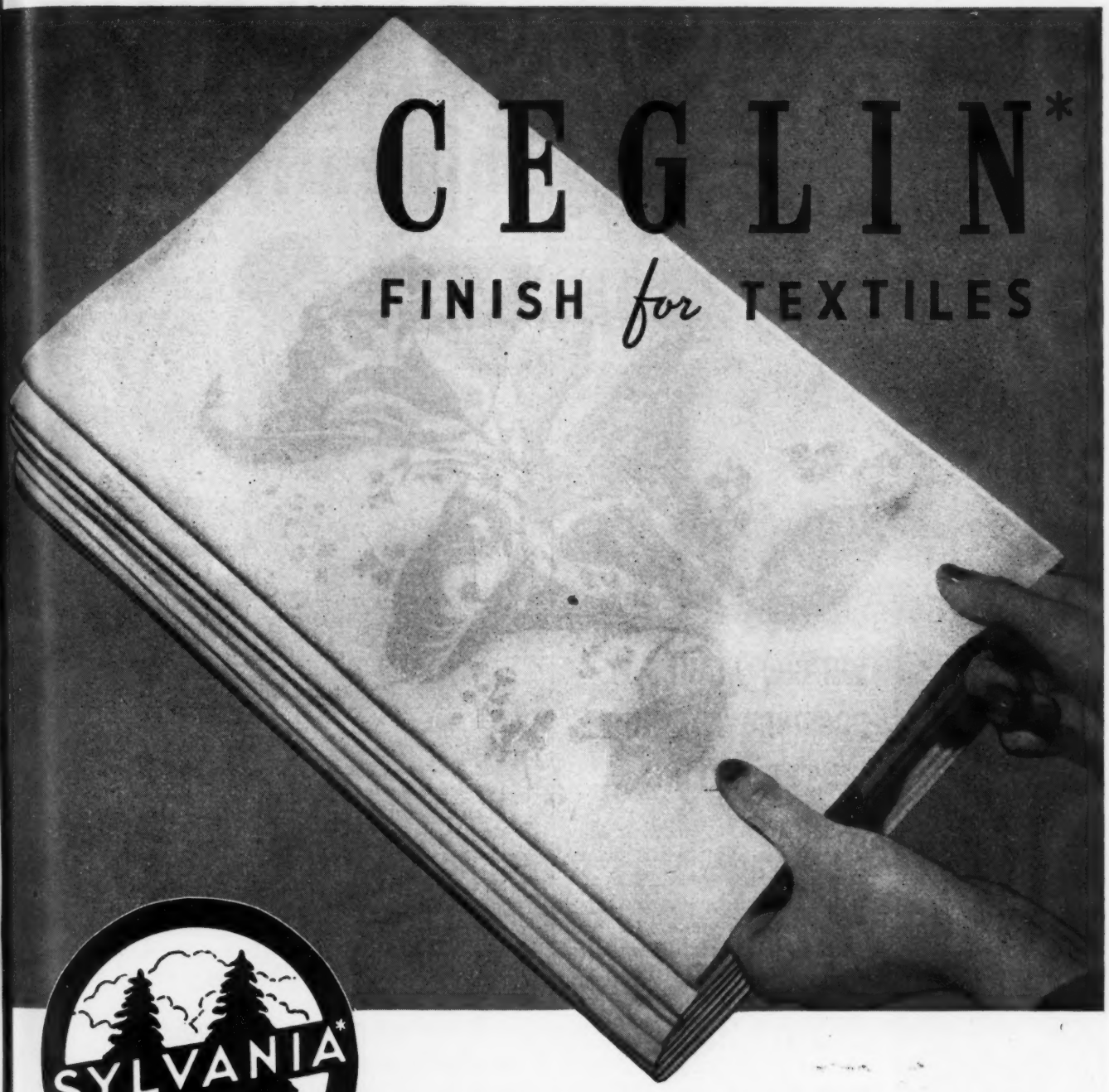

CEGLIN*

FINISH *for* TEXTILES

SYLVANIA*

When applied to cotton damasks, one can see, feel, and through longer service, appreciate the advantages of this Ceglin* finish. Ceglin produces a lint-free, smooth, lustrous and linen-like surface which is retained after repeated laundering. Institutions and service organizations will find the use of Ceglinized damask economical in that the saving in starch during its serviceable life will pay for the article.

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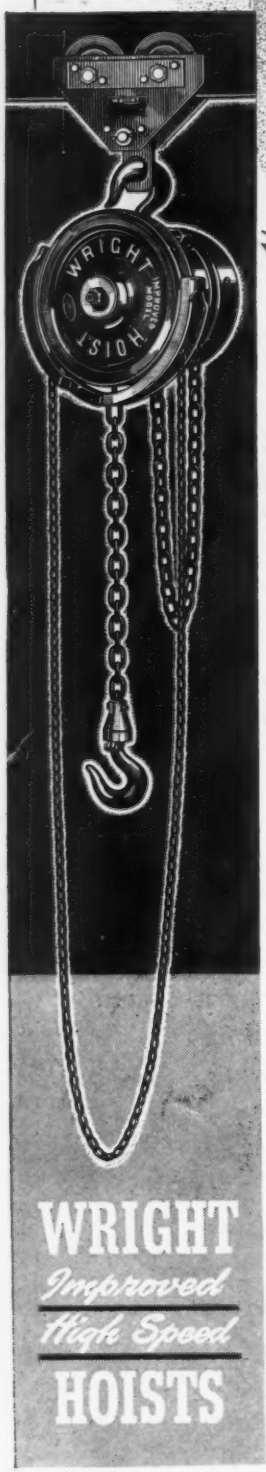
SYLVANIA INDUSTRIAL CORPORATION

General Sales Offices 122 East 42nd Street, New York 17, N. Y.
Works and Principal Offices Fredericksburg, Virginia

*TRADE MARK REG. U.S. PAT. OFF.



WRIGHT
Improved
High Speed
HOISTS

WRIGHT MAKES IT POSSIBLE TO TRUCK ON THE CEILING

No—it is *not* done with mirrors. It is done with either **WRIGHT** Improved High Speed Hoists, **WRIGHT** Speedway Electric Hoists, or **WRIGHT** Cranes.

WRIGHT material-handling equipment is tailor-made for *your* production problem. It doesn't matter whether your product is paper or locomotives, textiles or tanks, there is a **WRIGHT** hoist or crane that can handle it safely, rapidly, and economically.

In your local classified telephone book you will find the name of the **WRIGHT** distributor. He is a good man to know. He can advise methods for both speeding production and saving money.

WRIGHT MANUFACTURING DIVISION
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ARMY E NAVY
FLYING OVER THE WRIGHT HOIST PLANT

In Business for Your Safety

GAIN TIME
ship early in day!

Mr. Brown: When'll this order reach the consignee?

Expressman: Let's see. It's not ten yet. About five this afternoon. Same day delivery 800 miles away is easy, when you ship early by AIR EXPRESS.

OF course, AIR EXPRESS is by far the fastest form of delivery—direct by air or by rapid air-rail service between thousands of points in the United States and foreign countries. Yet precious time is often lost through the old pre-war habit of accumulating shipments for pick-up at the end of the day.

So to *gain* time—to avoid heavy, peak-hour traffic that may delay your shipment—ship as early in the day as possible, so we'll be able to utilize the cargo capacity of all scheduled flights. This 3-mile-a-minute service is available direct to more than 350 U.S. cities and to scores of foreign countries.

AIR EXPRESS RATES REDUCED

As a result of the great volume of Air Express traffic created by wartime demands and the increased efficiency developed to satisfy these demands...Air Express rates within the United States have been substantially reduced, in some instances as much as 12½%, depending on the weight of the shipment and the distance it moves. Consequently, shippers nationwide are now saving an average of 10½% on air cargo costs.

NOTE TO SHIPPERS: *Ship Early*—as soon as shipment is ready—to assure fastest delivery. *Pack Compactly*—to conserve valuable space. **ASK** for our new 1943-44 CALENDAR-BLOTTER. Write Dept. PR-12, Railway Express Agency, 230 Park Avenue, New York 17, N. Y.

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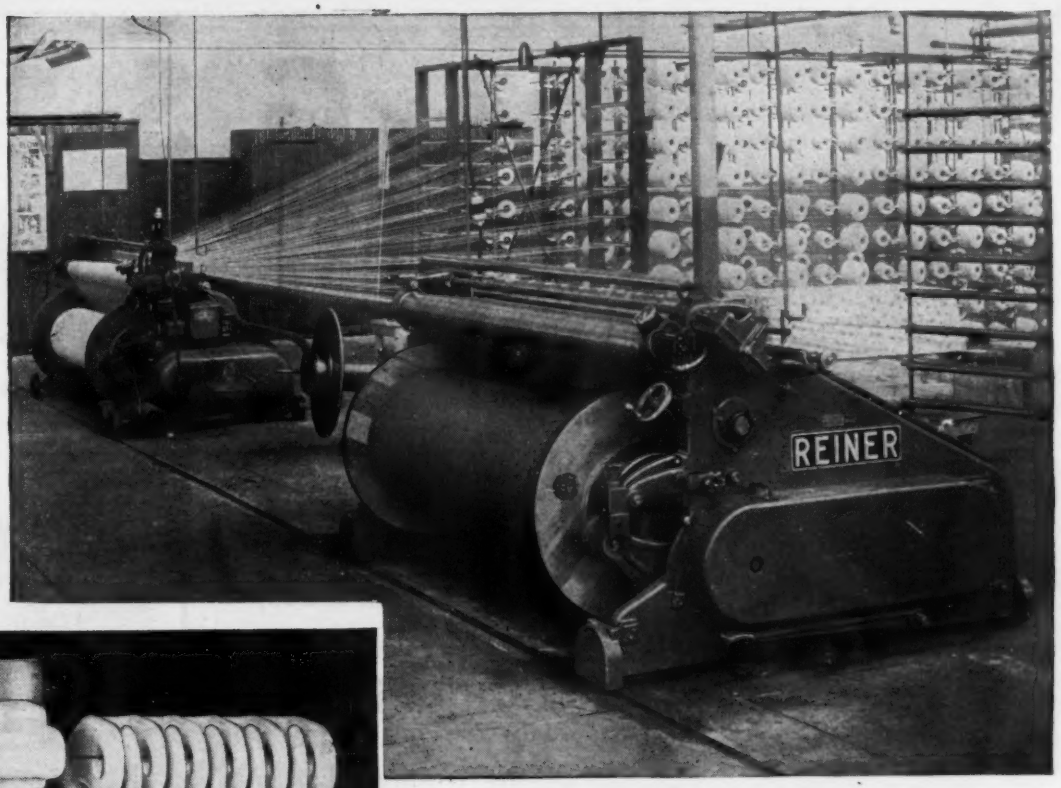
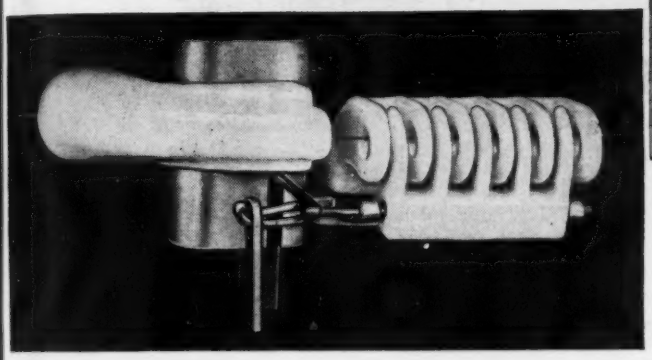
AIR EXPRESS
Gets there FIRST

Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION
Representing the AIRLINES of the United States

Two REINER Products for More Efficient Production at Lower Cost





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The most advanced warper on the market for beaming filament rayon, spun rayon, cotton, wool, worsted linen, etc.

WARPING SPEED CONTROL. Constant warping speed automatically adjusted without clutch or mechanical drives. In addition, a stepless speed range permits speeds of from 50 to 1000 yards per minute.

EXTRA slow, sensitive starting speed—independent of warping speeds.

DIRECT BEAM DRIVE permits adjustable and constant pressure of the yarn roller.

We are still building Warpers and Creels for the Textile Industries. "MACHINERY" can be obtained against Priority Rating.

***Replace Your Present Tensions with the* REINER**

COUNTER-BALANCED TENSION PAT.

The only balanced thread tension on the market. A guaranteed uniform tension is obtained regardless of the thread used or the speed employed. Over 20,000 already in use in woolen, rayon and cotton mills in all parts of the country. Send for trial order or write for full information.

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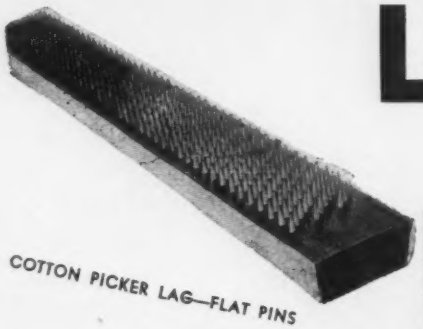
LAGS
BY CRABB



COTTON PICKER LAG—FLAT PINS

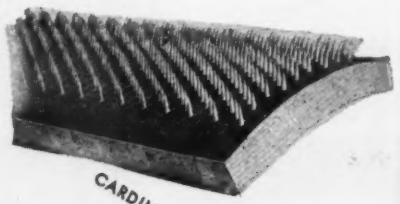
RAG OR SHODDY PICKER LAG

Let us SHOW you

the results of the Reorganization of this company . . . New Life . . . Better Products. We offer QUALITY . . . large stocks, ample supplies of steel, wood. Let us help you speed your war contracts.

Immediate Delivery

STEEL-FACED RAG OR SHODDY PICKER LAG



CARDING BEATER LAG

WM. CRABB & CO.
301 THIRD AVENUE
NEWARK, N. J.

JUTE and FLAX CARDS PINS
COTTON WASTE PICKER PINS
RAG or SHODDY PICKER TEETH
MIXING PICKER TEETH and PINS
WASTE MACHINE PINS
DOFFER TEETH
CORDAGE PINS
TENTER PINS
FALLER BAR PINS
JENNY BAR PINS

GILL PINS
HACKLE PINS
COMB PINS
FALLER BARS—PLAIN or PINNED
HACKLES FOR MACHINE or HAND
GILLS PINNED
TENTER PLATES PINNED
WET and DRY COMBS
FOR THE BRUSH TRADE
LAGS—GILLS—TENTER PLATES

ROLLS—FALLER BARS
IRON RIVETS
PLAIN or STEEL CLAD LAGS FOR USE IN—
JUTE and FLAX CARDS
COTTON WASTE PICKERS
CARDING BEATERS
RAG or SHODDY PICKERS
WORKER ROLLERS—WOOD or STEEL
STRIPPER ROLLERS—WOOD or STEEL

LUMPERS
WIPING WASTE MACHINES
PINNED FEEDER SLATS
PLAIN SLATS
DOFFER PLATES
WASTE MACHINE
DOFFER CYLINDERS—STEEL
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PINNED FEED ROLLERS

Where
Trade Orders Meet*

*NEW YORK COTTON EXCHANGE

Established 1870

the vital medium for cotton distribution

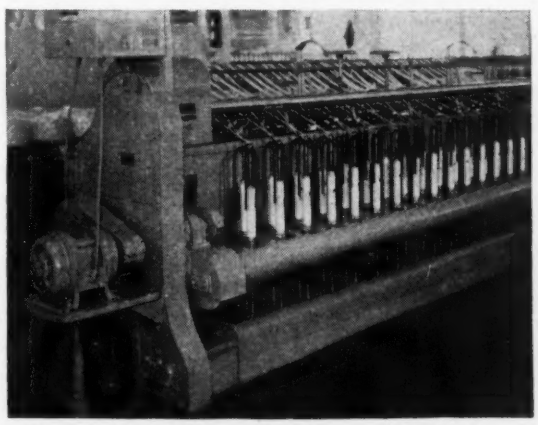
DU PONT BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

What's on the HORIZON for

DU PONT THREE DIMENSIONAL SEEING?

A periscopic look into the future of Three Dimensional Seeing:

For the immediate future, painting machinery in colors that contrast with material being worked will help operators distinguish material from machine. Spotlighting dangerous moving parts with vivid colors will avert accidents. Paint and colors that *reflect* light will improve visibility—will let a man work more accurately, *faster*.



Because the machinery has been painted in turquoise blue—in sharp contrast with the material—workers in this textile plant enjoy keener, faster, more accurate vision.

For the post-war world, these wartime benefits will still have significance. But the handwriting on the wall tells a story of a better manufacturing environment. Because of light, cheerful, pleasing colors, factories will be more agreeable places in which to work, employees will be happier. This is the shape of things to come. And this is the promise of Three Dimensional Seeing.

For the present, supplies of raw materials are restricted, and Army and Navy painting needs are getting first call. You may find it hard to get all the paint you want when you want it. If so, we're sure you'll understand.

E. I. du Pont de Nemours & Company (Inc.), Finishes Division, Wilmington 98, Delaware.

BUY WAR BONDS

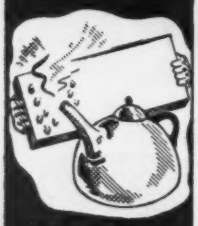
DU PONT PAINTS

FOR FACTORY MAINTENANCE AND MODERNIZATION

LIQUID PORCELAIN-LIKE
DAMP-TEX FOR
WET
OR DRY
SURFACES

GIVES YOUR WALLS AND EQUIPMENT A PORCELAIN-LIKE FINISH OVERNIGHT

KILLS RUST* AND FUNGUS



Proved Steam-Proof by STEAM TEST

Proved Fungus Resistant by FUNGUS TEST

Proved Resistant to 2% Caustic Solution by CAUSTIC TEST

Damp-Tex Enamel is used in 4,000 plants for wet surface maintenance. It penetrates and forces out moisture. Adheres to damp or dry wood, metal, concrete, plaster. Stops deterioration, rot, rust, bacterial and fungus growth*. Will not crack, peel, check, sag or fade. Comes in non-yellowing white and colors. One coat covers. Dries hard overnight into tough, porcelain-like waterproof film.

*Pre-Treated Damp-Tex.

Send for Details OF OUR NO-RISK TRIAL OFFER

Your first Damp-Tex is used entirely at our risk. *Send* for folder I for complete details.

DAMP-TEX
THE WET-SURFACE ENAMEL
STEELCOTE MFG. CO. · ST. LOUIS, MO.

The FEEL of Quality
that results from perfect Carding!

Uniform *quality* depends greatly on perfect *carding* and *napping*. The kinds of *finished* goods that build reputations demand the care of cards that *stay* perfect, and sharp. Wissco uses special steels; precision ground by experts, and then checked under a microscope. Wissco Special Foundation permits up to 200 lbs. more tension, eliminating time and expense of redrawing after a few months. Write for literature. Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y.

Wissco
CARD AND NAPPER CLOTHING

IN AFRICA OR BROOKLYN...

BUSY TAILOR WORKS ON A UNIFORM SOMEWHERE ON THE AFRICAN DESERT
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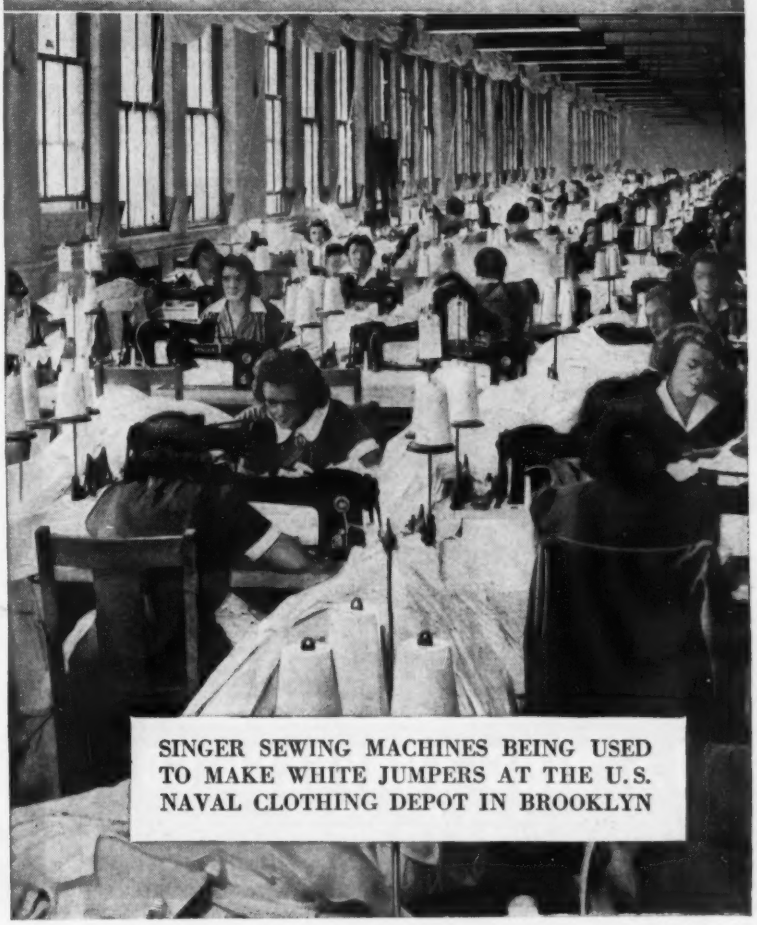
On the African desert, in Brooklyn, and many other parts of the world, Singer sewing machines are playing a vital part in clothing and equipping men for all branches of the armed forces.

Singer sewing machines formerly available for making hundreds of different things for civilian use are now sewing parachutes, gas masks, uniforms, tents, gun covers, shoes, powder bags, fur lined helmets, and many, many other articles needed to bring speedy victory to US. And if, like many others, you are having trouble getting Singer sewing machines, remember that Uncle Sam is our first customer, and his needs must be satisfied first.



SINGER SEWING MACHINES BEING USED TO MAKE WHITE JUMPERS AT THE U.S. NAVAL CLOTHING DEPOT IN BROOKLYN

SINGER

SEWING MACHINE COMPANY
Manufacturing Trade Department
149 Broadway New York, N. Y.

Branches in all principal cities

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There's ONE problem you can easily Lick!

USE "U. S." RING TRAVELERS

That is where we come in—on Ring Travelers. You textile supers are hard-boiled when it comes to travelers. But you can't overlook any possibility that there may be room for improvement in the travelers you are using. In any event it will cost you nothing to find out. We stand ready to give you expert advice on the design and performance of travelers as influenced by ring sizes, spindle speeds, heat, twist, stock, lubrication and all other factors you know so well. "U. S." Ring Travelers are the product of precision manufacture, scientific control of every detail, with special attention to metallurgy—aimed to get the best results from fast dwindling supplies of bronze and steel.

SEND FOR THE U. S. EXPERT

Write or wire us. Let us get together on your problems of maintenance and performance of ring travelers — to increase your War Production output now and postwar profits later!

PERFECT BALANCE Weighs same on both sides. Straight part of shank is in center of gravity. Distributes lubricant and wears evenly. Will not pivot twisting self and rayon.

THE NE-BOW Prevents yarn ends flying out, provides ample headroom for threading—prevents binding on ring. Note "bend inward" at top of horn.

HEAT CONTROL for better metal—dominates "U.S." production! Carburizing and tempering ovens are electrically controlled through pyrometers — for better performance.

THE BEVEL EDGE Great pioneering "U.S." contribution to smooth spinning, twisting. Eliminating angular edges, gives uniformity of tension more even yarn, less "fly."

• SOLD UNDER THESE TRADE NAMES

Bowen Round Point Travelers
Bowen Square Point Travelers
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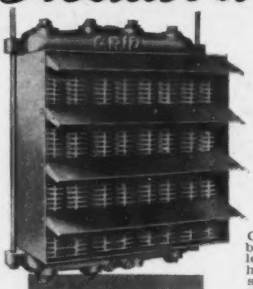
Bowen Flat Oval and Round Wire Travelers
Bowen Patented Ne-Bow Vertical
Bowen Patented Vertical Offset

U.S. RING TRAVELER CO
AMOS M. BOWEN
President and Treasurer
PROVIDENCE RHODE ISLAND

Install a **UNIT HEATER** *that will stand wear as long as the pipes furnishing steam or hot water to it!*



Cast Iron GRID Unit Heaters built to last for years—to last longer than any other types of heating equipment. Its condensers are made in ONE piece—no soldered, brazed or welded connections to become loose—no leaks—no breakdowns—and no maintenance expense.

CAST IRON *heating sections*

Engineered and tested to operate with either steam or hot water, up to 250 lbs. steam pressures, each "fin" heating section is made of high test cast iron to cooperate with the war effort. No electrolysis to cause corrosion . . . no heating failures. In the GRID unit heater no effort is spared to make it a high quality product, and we're constantly working on improvements to make it better. Catalog and capacity tables are yours upon request.

D. J. MURRAY MFG. CO.,
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GRID

Offices in Principal Cities

RUST Spells WASTE!
ELIMINATE THIS HAZARD WITH
Ensign **395** **METAL PRESERVER**
REG. U. S. PAT. OFF.

Hidden Thieves!
RUST and CORROSION
They cannot hide under
395 METAL PRESERVER

An impenetrable shield through which no destructive agents of rust can reach the metal.

With 395 on the JOB REPLACEMENTS are NIL

Not a PAINT—A COMPOUND Free From Pigment or Drier.

Always flexible, expanding and contracting with metal, hence an unbroken coverage.

No chipping, cracking, peeling or blistering. Moisture, fumes, steam, and alkali cannot attack and destroy.

Long lasting coverage. Gloss black. Covers in one coat. Easy to apply. Dries in 8 hours

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ENSIGN PRODUCTS CO., Since 1887
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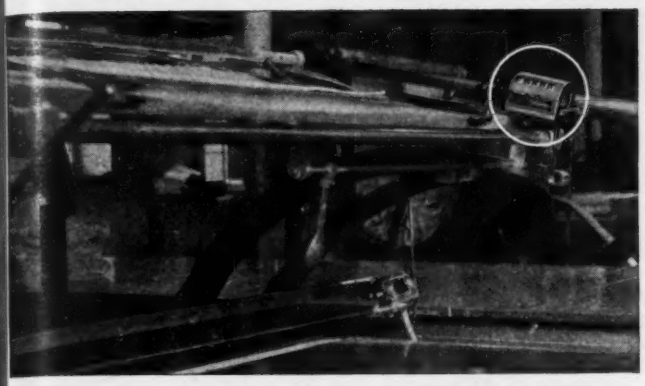
371 Belt Preserver 384 Rope Preserver

BIG DIVIDENDS RESULT FROM INSURANCE AGAINST RUST AND CORROSION



PRODUCTIMETERS *are a "Must" on Textile Machines*

With the vast textile industry unremittingly at work turning out materials for our armed forces, as well as for civilian needs, it is more than ever vital to have absolute check on production.

There's a Productimeter for every counting application throughout the entire processing . . . braiding, coating, combing, doubling, drying, folding, inspecting, winding, dyeing, bleaching . . . On looms the pick method of counting offers a sure way of determining rates of pay. And you can depend on Productimeters . . . they're built for speed, accuracy and hard service. (Above) Model 5-H-2 attached to Folding Machine.

Write for descriptive Catalogs:

Pick Counters No. 5
Yardage Counters No. 6
Revolution Counters No. 8
Predetermined Counters No. 15

DURANT MANUFACTURING CO

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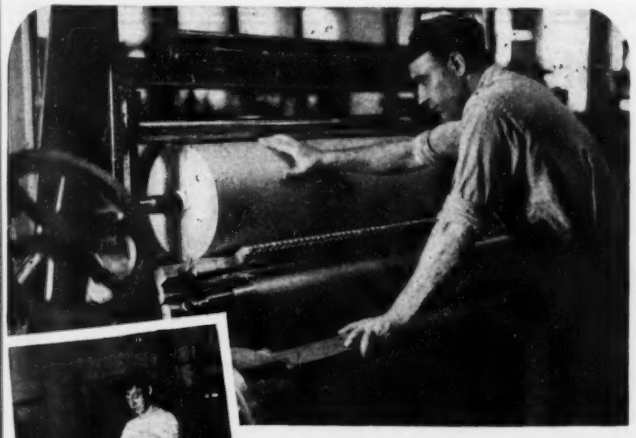

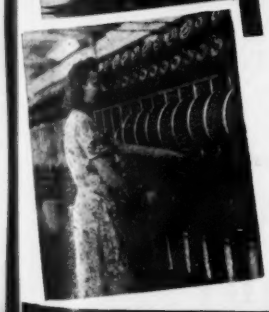

KARAGHEUSIAN MAKES PAPER YARN

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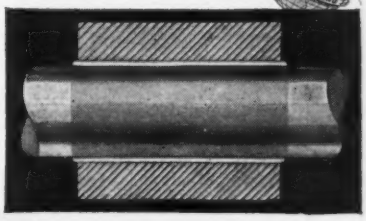

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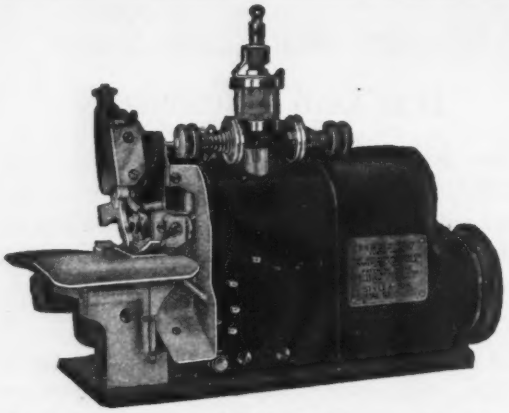

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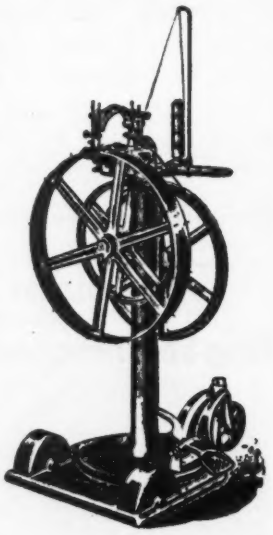

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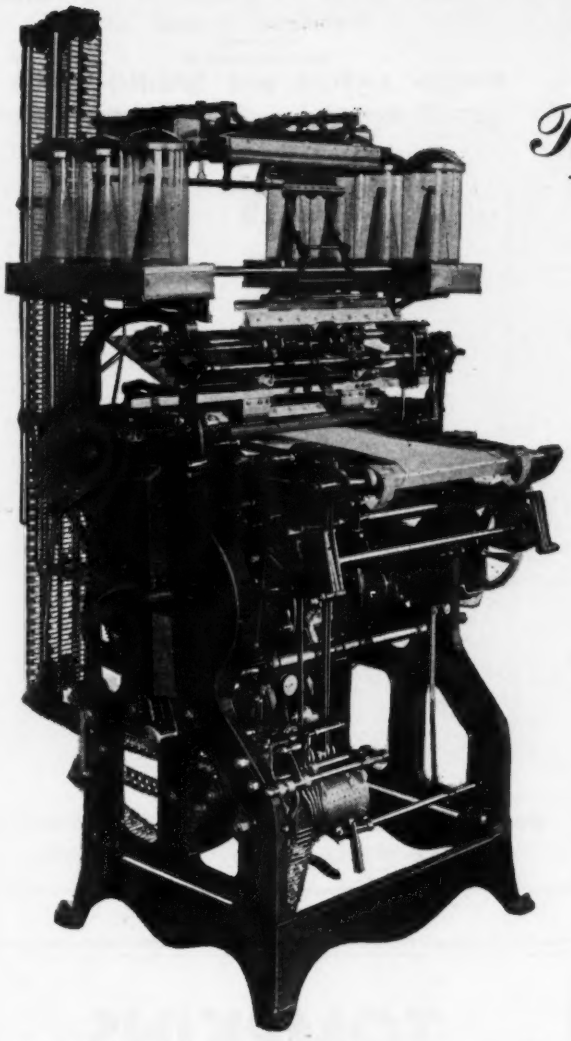

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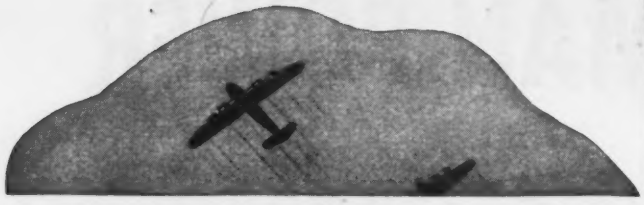

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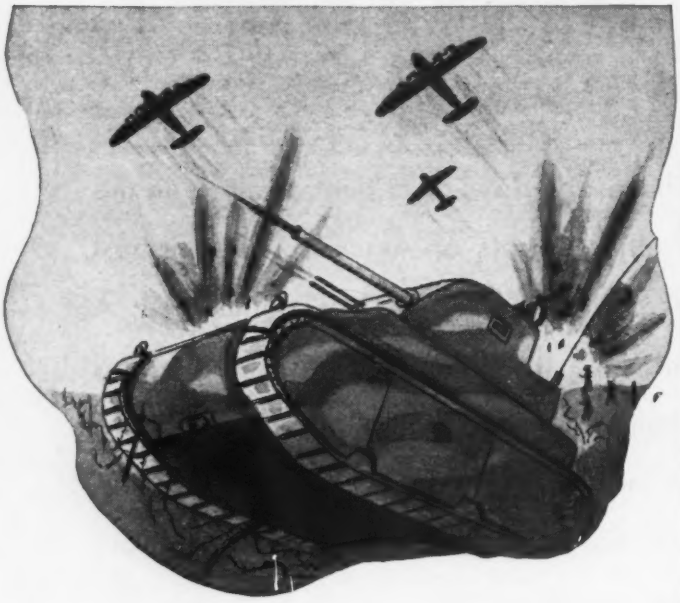

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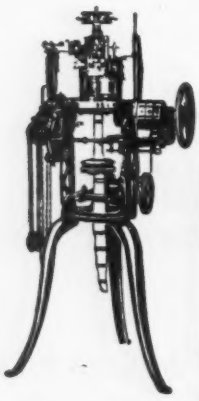

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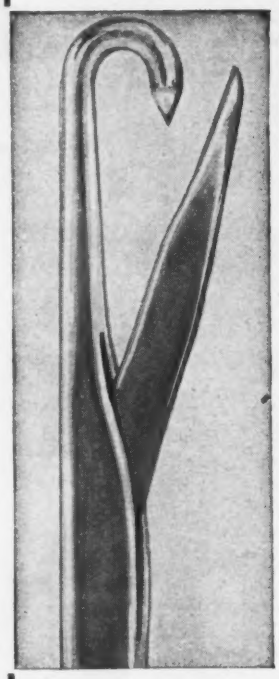

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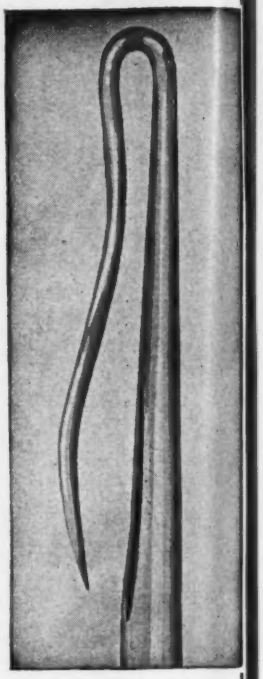

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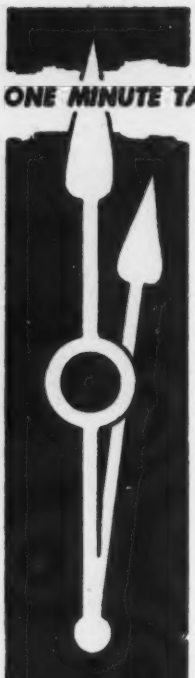

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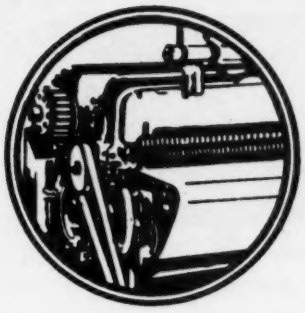

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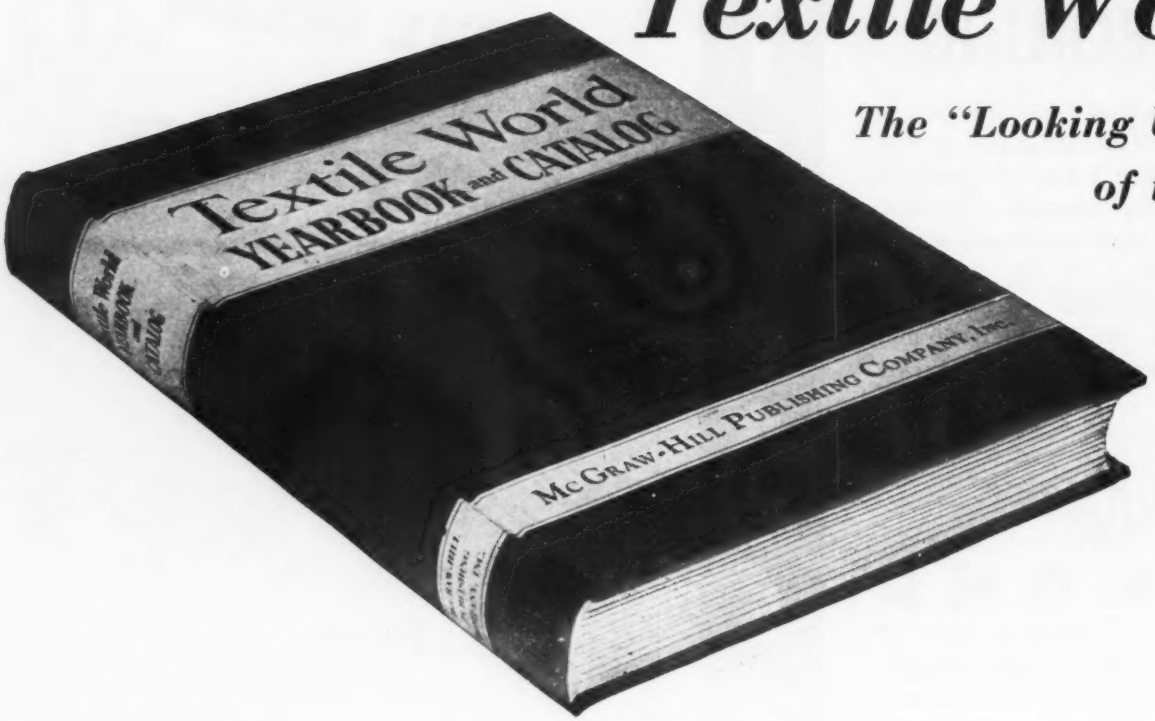

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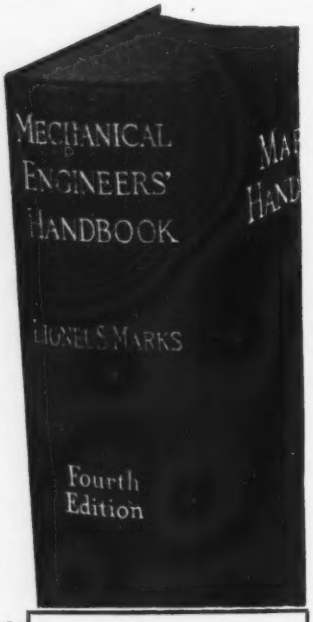

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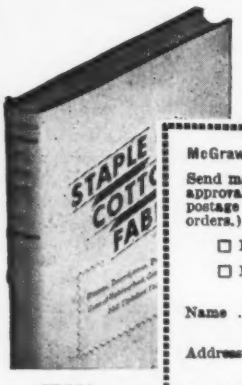

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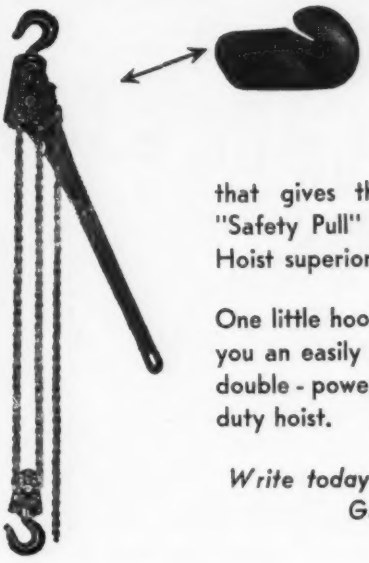

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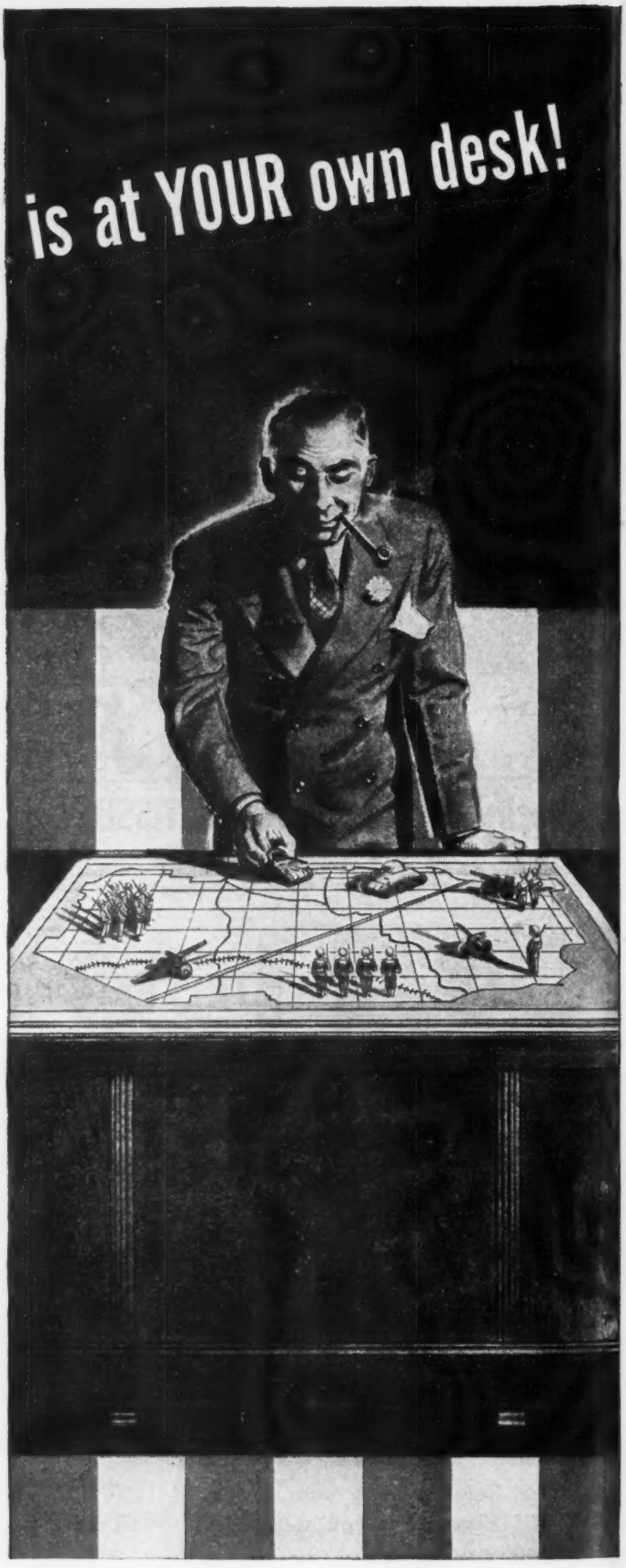

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P-683, Textile World
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P-706, Textile World
330 W 42nd St., New York 18, N. Y.

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P-700, Textile World
330 W. 42nd St., New York 18, N. Y.

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MILL MANAGER wanted for narrow textile mill located in Virginia, either broad goods or narrow goods experience necessary. Give as much detail as possible, past experience, education, age, salary expected, etc. Please write P-702, Textile World, 330 W. 42nd St., New York 18, N. Y.

EXPERIENCED SUPERINTENDENT wanted: on Jacquard Narrow Fabrics, to take charge of woven label mill. Write P-703, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS VACANT

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DYER WANTED second hand. To assist dyers in woolen, worsted and combination skein yarn dyeing. Plant located in Brooklyn, N. Y. Answer giving all information in first letter. P-713, Textile World, 330 W. 42nd St., New York 18, N. Y.

Additional Employment and Business Opportunity advertising on page 248

WANTED

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A man is wanted to supervise all phases of fiber laboratory testing and experimental spinning on cotton, and to represent the concern in dealing with breeders, classers, schools, and laboratories. He should be acquainted with current research on cotton fibers, should understand the principles of yarn manufacture, and should have some knowledge of cotton classing and marketing.

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P-696, Textile World
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1—44" Van Vlaaderen Copper Basket Top Vertical Motor Driven Extractor
1—48" Tolhurst Copper Basket Belt Driven Extractor
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1—36" C & M Fearnaught Picker
1—66" Voelker Dble Bed Cloth Press
1—60" P & W Edge Stenciling & Winding Machine
1—66½" Parks & Woolson Single Shear
1—106" 2 Blade Schulze Double Shear

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30,000 Warp Spinning Bobbins

This is worried MR. WITSEND

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1—Curtis & Marble Open Width Winding Machine (Inspecting)

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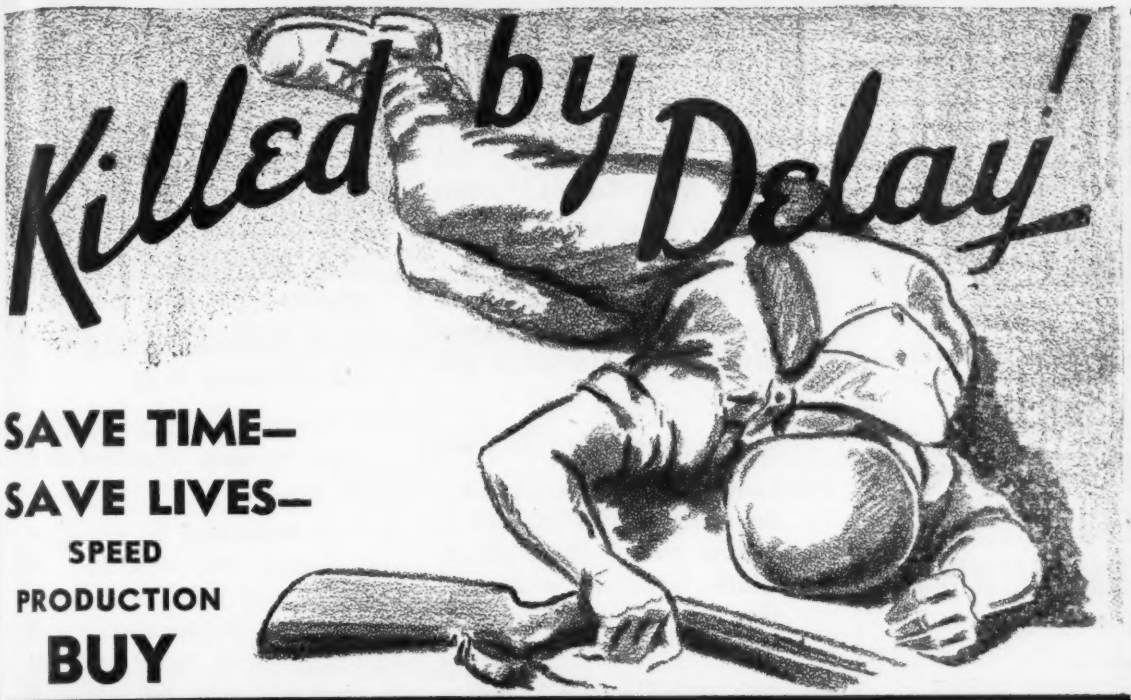

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1—American 48" Open Top Motor Driven Extractor, Copper Basket.
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(Continued from page 242)

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Textile World, published monthly at Albany, N. Y., for October 1, 1943.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid personally appeared J. A. Gerardi, who, having been duly sworn according to law, deposes and says that he is the Secretary of the McGraw-Hill Publishing Company, Inc., publishers of Textile World, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, McGraw-Hill Publishing Company, Inc., 330 West 42nd St., N. Y. C. 18, Editor, Douglas G. Woolf, 330 West 42nd St., N. Y. C. 18, Managing Editor, William B. Dall, 330 West 42nd St., N. Y. C. 18, Business Manager, William Buxman, 330 West 42nd St., N. Y. C. 18.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder, the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) McGraw-Hill Publishing Company, Inc., 330 West 42nd St., N. Y. C. Stockholders holding 1% or more of stock: James H. McGraw, 330 West 42nd St., N. Y. C. James H. McGraw, Jr., 330 West 42nd St., N. Y. C. James H. McGraw, James H. McGraw Jr., and Curtis W. McGraw, Trustees for: Harold W. McGraw, James H. McGraw, Jr., Donald C. McGraw, Curtis W. McGraw, 330 West 42nd St., N.Y.C. Edwin S. Wilsey and Curtis W. McGraw, Madison, New Jersey, Trustees for James H. McGraw, 3rd., Curtis W. McGraw, 330 West 42nd St., N. Y. C. Donald C. McGraw, 330 West 42nd St., N. Y. C. Anne Hugus Britton, 330 West 42nd St., N. Y. C. Mildred W. McGraw, Madison, New Jersey. Grace W. Mehren, 73 No. Country Club Drive, Phoenix, Arizona. Wilson C. Laucks, 1501 Cleveland Avenue, Wyomissing, Pennsylvania.

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4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is, (This information is required from daily publications only.)

J. A. GERARDI, Secretary.

McGRAW-HILL PUBLISHING COMPANY, INC.

Sworn to and subscribed before me this 29th day of September, 1943.

[SEAL] EMILY Z. SHEPARD.

Notary Public, New York County, New York Clerk's No. 768, N. Y. Co. Reg. No. 481275.

(My commission expires March 30, 1944)

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Departmental Staff

TEXTILE WORLD

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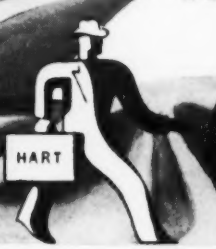

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